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OUR SPECIAL EXPOSITION NUMBER.

ON the 23rd of the present month, the Third International Exposition of the Rubber Trade and Allied Lines—and the first rubber exhibition ever held in America, will open its doors in Grand Central Palace, New York. Vast preparations have been made for this event. Practically all the governments—over 20 in number—whose people are in any way interested in any phase of the rubber industry will be represented. There will be the most comprehensive display of crude rubber, both wild and plantation, ever brought together in any one place. The planters of the Far East have sent their products 12,000 miles for the benefit of the visitors at this exhibition. American manufacturers have taken hold of the enterprise with enthusiasm. It bids fair to be a more notable achievement even than the rubber exhibition held in London last summer.

We think that this unusual occasion calls for a special number. Accordingly our next issue, while under date of October 1, will be issued on the opening day of the exposition, September 23rd, and will be a special exposition number. In addition to the usual amount of general rubber information, this number will contain 20 pages, probably more, devoted exclusively to the exposition. It will tell what governments are represented, give the names of their representatives, and show the character of their displays. It will give a complete list of all the exhibitors, describing their exhibits, and illustrating them wherever this is possible.

It will contain a complete programme of the work to be undertaken by the conference, which is to be held jointly with the exhibition. The names, and official connections, of all the rubber experts who will take part in that conference will be given, together with the subjects which they are to treat. It will be a valuable souvenir of that exceedingly important and interesting event.

We intend to make it the most notable contribution to the periodical literature of the rubber industry that has yet appeared.

TWO OPPOSING VIEWS OF SYNTHETIC RUBBER.

ON another page in this issue will be found two strikingly antagonistic views of the synthetic rubber situation—one full of optimism, the other distinctly pessimistic. The first view is taken from a paper, addressed to a London publication, by Messrs. Strange and Graham, two of the leading champions of the new English synthetic rubber process, recently made public by Professor Perkin. They demonstrate, mathematically, the extremely low cost of synthetic rubber by the Perkin process. The necessary raw materials are all of an inexpensive character—starch from maize at 2 cents a pound, common salt at one-third of a cent a pound, coal at less than one-fifth of a cent a pound—the entire cost of raw materials necessary to make rubber being not over 4 cents a pound. The manufacturing expense, where production is engaged in on a large scale, would bring the total cost, they estimate, of a pound of their rubber up to 8 cents, or possibly 12 cents, per pound. At this price, all wild rubber will immediately disappear from the market, and the latex-gatherer of the Amazon with his tin cup and calabash will become merely a reminiscence. Plantation rubber will continue as long as it is desirable to have it do so, in order to maintain prices at a level where the synthetic industry may enjoy profits without precedent.

That is the side of the case as it appears to the promoters of the new process of making artificial rubber.

But Mr. Gustave Van Den Kerckhove, the Belgian rubber expert, views the matter from a different standpoint. He says that he has examined hundreds of samples of synthetic rubber, during the last twenty years, and never has found one that could compare with the brown biscuits from the Amazon. He concedes that synthesis has played a successful role in indigo, camphor and sundry other commodities, but he contends that the rubber problem is absolutely different—that in rubber the essential quality is elasticity, and that is something, in his opinion, chemistry cannot produce. He does not assert that the labors of the rubber builders have been in vain. He admits that many of these synthetic productions are good for compounding, that they make valuable adulterants; but as for synthetic rubber taking the place of natural rubber, he pronounces that a pure "mirage."

So there are the two sides of the synthetic problem as it stands today. Probably somewhere between the two lies the truth. Up to the present time synthetic rubber, commercially speaking, has been a mirage, no doubt; but it must be remembered that the rapid pace at which civilized life has progressed, during the past hundred years, is due largely to the fact that so many mirages have been lassoed and put to work. Natural rubber was a mirage up to the time Goodyear struck a handful of it mixed with sulphur, against a hot stove.

A MEMORABLE DAY IN THE RUBBER COUNTRY.

NEXT Saturday, the seventh of September, will be a memorable day in the history of South American rubber development, for on that date will occur the formal opening of the Madeira-Mamoré railway. The richest rubber territory in the world will be opened up to commerce, and the dream of the Bolivians for the last fifty years will be realized.

This railway in point of extent is not impressive, as it is less than 250 miles long, but in its enormous cost in money and time, its exceptional demand on engineering skill, and in its great importance—not only to the Republic of Bolivia, but to the entire rubber industry, and thus to civilization in general, it is of larger significance than many railroads that extend across a continent.

It has been known for half a century that the territory drained by the tributaries of the Madeira river—itself the most important tributary of the Amazon—was wonderfully rich in rubber. Thousands of tons of rubber have been taken from this territory, but at a terrific cost in labor and human lives, and under difficulties almost insurmountable. The Madeira river is navigable to large steamers for 800 miles above the point of its confluence with the Amazon. Then comes a stretch of river about 220 miles in extent, containing 19 cataracts and rapids. Beyond this turbulent reach of water the Madeira and its tributaries are again navigable for nearly 1,000 miles. To make the passage through that succession of rapids and around the falls required 20 days of laborious and exceedingly dangerous work when coming down stream, and 30 days when returning. Hundreds of tons of rubber, and thousands of lives have been lost in making this perilous passage. By the opening of this railroad this distance can be accomplished without loss of property or life in a few hours.

Americans may feel a special pride in the success of this great undertaking, because it was an American, Lieutenant Gibbon, of the United States Navy, who, in 1852, first thoroughly explored this region; and it was also an American, the gallant and picturesque Colonel George E. Church, who nearly 40 years ago made the first attempt to build this road. He surveyed the distance, and built a few miles of the road, but was unable to proceed, because the financial supporters of the enterprise became alarmed at the great expense involved. And finally, it is owing entirely to American engineering skill and American sanitary science that the road has at last been completed.

ARE RUBBER GOODS DETERIORATING?

WHEN the able expounders who daily fill the editorial columns of our metropolitan press run dry of material, they are quite likely to resort to that always safe and interesting theme—the general deterioration of all things modern. An editorial writer in one of the New York dailies—and one usually characterized by sanity and moderation—in illustrating the reasons for the higher cost of living, spoke of the inferior quality of present day manufactures, and cited rubber as a case in point.

"For example," he observes, "there is rubberless rubber—the highly adulterated product of an international trust. With a minimum of the elastic gum and a maximum of non-fibrous substance, articles supposed to be chiefly rubber are so weakened in durability and elasticity as to serve their purposes scarcely

at all—certainly only for a brief time. The consumer has to pay more for the article, only to throw it away in a marvelously short time and buy another. He pays 50 per cent. more than formerly and buys three times as often—an increase of 350 per cent. in this factor in the cost of living."

This is interesting, but is it true? Is it a fact that the manufactured rubber articles of today are rubberless? Take tires, for instance—a proper subject for consideration, as tires now constitute fully one half of the rubber output of this country. Have they deteriorated? As a matter of fact, tires—or to be more specific, automobile tires—were never better than they are today. There has been a constant improvement, compelled by competition, until the standard tires today, if properly treated, are expected to give at least 6,000 miles of service. There are plenty of cases on record where they have given twice or three times that service. To be sure, it is quite possible to get inferior tires if the purchaser is disposed to consider nothing but the initial cost. Manufacturers will always be found willing to make what the consumer is anxious to buy, and wherever there are enough consumers looking for cheapness as the prime consideration, there will be a supply of inferior tires to meet this demand. But the man who wants a good automobile tire can supply that want more readily today than ever before.

Nor has there been any noticeable deterioration in other lines of rubber manufacture. There is as good hose available today as ever, and as good footwear. There is a certain well-known brand of footwear on the market in which the compound has not been changed in thirty years, notwithstanding the extreme fluctuations in the price of crude rubber during that time. Some manufacturers, when the price of crude rubber soared toward the three-dollar mark, may have sought to put less of it in their compounds; but, if in doing this they lowered the quality of their goods they have paid the penalty, for whenever any established manufacturer has lowered the quality of his output, he has done it at the expense of reputation—and of sales. There is enough demand for good goods to make it well worth the while of reputable manufacturers to maintain their standards, even though at times they are compelled to forego profits.

If the consumer finds that he is getting poor tires, unserviceable hose, and rubber boots that won't stand wear, he had better forthwith abandon the brand he is using and find out what brands will give service—for there are plenty of them. Over 80,000,000 pounds of crude rubber are now used in this country every year. It must go somewhere. It would appear to be a reasonable suspicion that it goes into rubber goods. If it does, obviously there are a great many American rubber products that are not altogether "rubberless."

THE RUBBER CHEMIST.

THE rubber chemist has at last come into his own. Fifteen years ago only a few rubber manufacturing concerns employed an expert chemist, but all that has been changed, and now with the exception of the small manufacturers, the rubber chemist is a recognized member of all rubber manufacturing enterprises.

There are three reasons for this change. The first is the great increase in the importance and value of rubber manufacture in this country. In fifteen years' time the value of the annual product of our American factories has risen from $85,000,000 to over $220,000,000. The second reason to which may be ascribed the rise of the rubber chemist is the great development that has taken place in the last decade and a half in rubber planting. Fifteen years ago the product of the rubber plantations was so small as to be quite negligible. Last year the product of the rubber plantations amounted to over 14,000 tons, and is likely in three years' time to be almost three times its present size. The third reason for the rapidly increasing importance of the rubber chemist is the prominent position that synthetic rubber now occupies, if not in commerce, at least in the thought and attention of the rubber world.

The work of the rubber chemist may be divided properly into two departments; one concerned with the production of crude rubber and the other with its utilization in manufacturing processes. Before the advent of plantation rubber, there was very little in the field of rubber production that the rubber chemist could interest himself in to advantage. The natural home of wild rubber among the inaccessible jungles along the Amazon, made it practically impossible for the white man to give this problem adequate study, but with the development of plantation rubber the situation has distinctly changed, for in the plantation the expert cannot only live with perfect safety, but he can work with every comfort.

The problem which confronts the plantation chemist is one of considerable variety, covering the soil, the question of fertilizing, climatic conditions, topographical

conditions, different methods of tapping and processes of coagulation. For instance, here is an interesting question to which the crude rubber chemist may properly devote his attention: What is the "nerve" of the rubber and how is it produced? Whoever solves that successfully will do a great deal to advance the interests of the plantations in particular, and the trade at large.

But it is the second department of chemical activity, namely, the chemist's work in the rubber factory with which this discussion is particularly concerned.

The chemist in the rubber works has before him the problem of taking the crude rubber as it arrives in the factory and getting the most out of it. At the present time, and probably for some time in the future, crude rubber supplies will be ordered rather according to physical tests than to chemical tests; that is, the purchasing agent will buy rubber which, in the opinion of the factory superintendent, after his years of experience, is best adapted to the purpose for which it is to be used. It is not likely that any considerable amount of crude rubber in the near future, at least, will be purchased by any chemical formula.

The rubber chemist in the average factory is not expected to do general research work for the benefit of the trade at large. Some larger factories may be able to afford this luxury, but, generally speaking, the manufacturer who employs an expert chemist, does so with the expectation that the result of the chemist's work will enure to his own advantage. The chemist is expected to apply himself to the problems of that particular mill, to see if the rubber bought is actually the best for the intended purpose, and to see next if the processes through which the rubber is put in that particular mill, are those which produce the best goods for their cost.

The importance of the work of the factory chemist can be judged from the enormous volume of crude rubber that annually goes into manufactured goods. In this country alone the manufacturers consume $100,000,000 worth of crude rubber each year, and the annual value of their output is over $220,000,000. It is obvious that if the chemist can secure only a small percentage of increase in the value of this annual output, his task is a most important one. His primary problem is the old question of vulcanization, the combination of sulphur with the rubber and the subjection of the two to heat. If this covered his entire problem, he would have plenty of range for his activities, for the number of permutations possible in the volume of sulphur and the amount of heat is almost limitless; but there are various other elements that enter into the situation—litharge, whiting and other ingredients that are usually employed in rubber compounding. Some of these ingredients act simply as fillers, others undergo a pronounced chemical change during the process of vulcanization. In addition, there is the problem of the proteids, whose presence in crude rubber and whose tendency to decompose when subjected to heat further complicate the situation.

It is a vast field that opens up before the rubber manufacturing chemist. He can hardly expect to cover it all himself. He must look for more or less assistance—and he will not look in vain—to the laboratories of the schools. The university chemist is in a different situation from that of his brother in the factory. The university chemist is in pursuit of knowledge in general. He is interested in any sort of discovery that widens, even in the least appreciable degree, the general domain of knowledge, regardless of the immediate practical results of his discovery. It has been true in the past—and will doubtless continue to be true—that the work of any individual college laboratory may not have been of very great value in itself, but when supplemented with the work done in other college laboratories, the aggregate result has been of great importance. So the practical working chemist may always expect considerable assistance from the more leisurely methods of the school laboratory; but to him the manufacturer looks for quick and practical results.

The qualifications of a successful factory chemist are various. In the first place he must, of course, have an accurate technical knowledge, such as it is the aim of reputable technical schools to afford. This "book learning" which he has, ought to enable him to detect at once any errors into which the "practical" man by too close following of ancient traditions may have fallen; and in the second place, he must have infinite patience, for the work of the laboratory is exceedingly laborious. It is done in sequestered quiet, far away from the sustaining interest and applause of the public, and a man must depend upon his own natural persistence to keep him steadily at work. It is a continual groping in the dark, with here and there a feeble ray of light. He can hardly expect, although the hope may remain constantly in his breast, to make any revolutionizing discovery. Those come only once in a generation. He must be satisfied if he is making progress, no matter how slow it may be. He must also have a natural bent for experimentation. The lure of new possibilities must have a strong hold upon him. But this must be balanced by such a controlling common sense, that he will be willing to give up any course of inquiry that he has pursued, when he becomes convinced that it will be fruitless, even though he has devoted months of time and energy to this particular line of investigation.

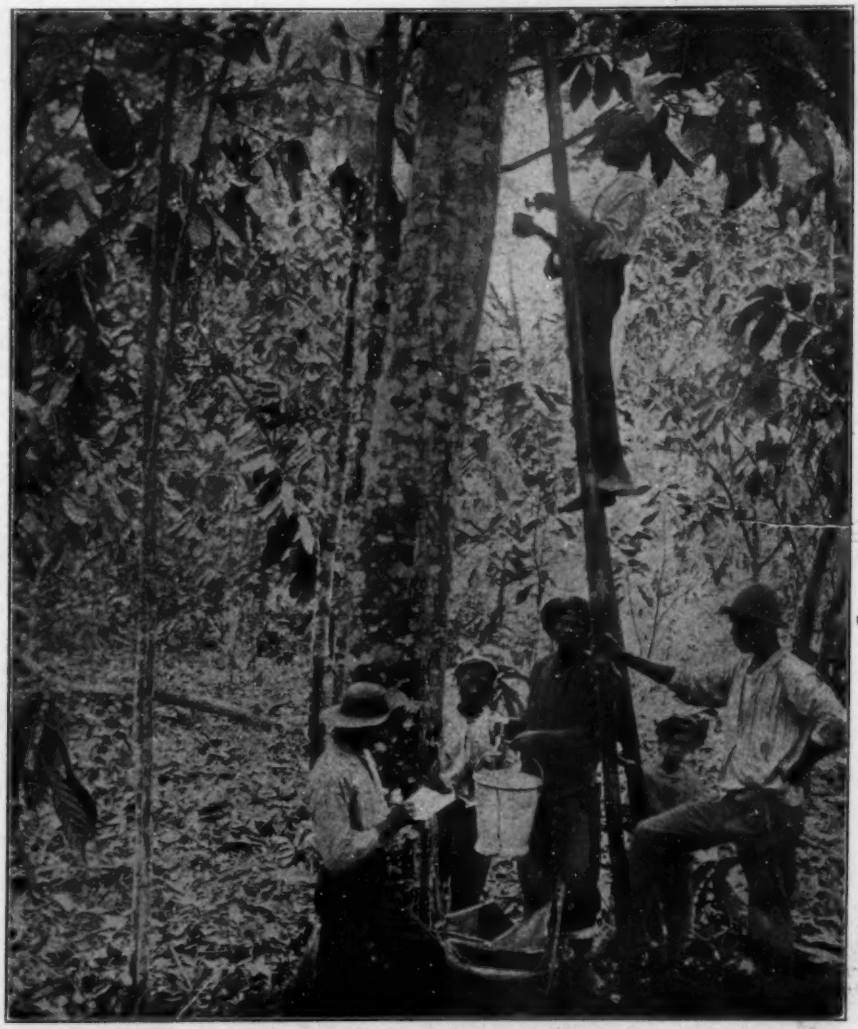
It goes without saying that the chemist should have all the encouragement that comes of the intelligent assistance of the superintendent, and his helpers, whose knowledge comes less from books than from years spent in the mill. He should also have the further encouragement of a prompt recognition on the part of the manufacturer of the value of his services. His services should not be gauged, like those of the clerical and mechanical force, by the time of his coming in the morning and the hour of his going at night, but rather like the expert legal adviser who is associated with every large business enterprise, his services should be gauged solely by the results achieved.

Trinidad and Its Rubber—III.

By the Editor of "The India Rubber World."

A Notable Agricultural Conference—Interesting Addresses—Important Paper by Mr. Collens—His Description of the Mongrel Hevea—The Island of Tobago—The Original Home of Tobacco—Where Robinson Crusoe Had His Wonderful Adventures—The Birthplace of Two Good Ideas—Tapping Castilloa and Its Coagulation—Castilloa Tapping Results.

I WAS fortunate in being in Trinidad at the time of the great agricultural conference this year. Dr. Francis Watts, the president, was good enough to see that I was made an honorary member, which admitted me to all of the sessions and functions. It was also a great time saver for me, as the heads of departments from the Guianas and all of the West Indian Islands were present. Thus, I did not have to go to British Guiana to see Professor Harrison, to Dutch Guiana to meet Dr. Cramer, or to any of the islands to see those interested in rubber. They were all there. I was glad as far as the Guianas were concerned, for a great drouth prevailed there all winter, and travelers were not comfortable. Fortunately, drouths occur about once in a hundred years only, and it is hardly likely that in the writer's life time at least, the beautiful Guianas will again be places to avoid.



TAPPING "CASTILLOA" TREES, 20 FEET UP, ON BAMBOO LADDERS.

Of the many lectures and discussions upon rubber, one of the most notable was a scholarly paper read by Mr. A. E. Collens, F. C. S., the assistant analyst and lecturer on botany, and the officer in charge of special investigations. He has in the past few years visited almost all (if not all) of the plantations in Trinidad and Tobago, examined the rubber, tapped, coagulated and tested, and in addition kept close watch upon the growth and production of the trees in the government gardens in Trinidad.

His paper gave from the beginning rubber planting in the two islands; *Heveas, Castilloas, Funtumias, etc.*

In his description of the experimental work at the St. Clair Experiment Station, he touched upon the supposed hybrid of the *Hevea Brasiliensis* and the *Hevea Confusa*. It will be noted that he did not affirm as an established fact that the trees are hybrids, as that has not been proved. His description of the mongrel *Hevea* is as follows:

"Bark, coppery or rust-colored, instead of grey; bark, thin and usually only slightly over ¼-inch in thickness, in some cases much less; latex, creamy yellow; rubber, slightly sticky and inferior in elasticity; leaves, semi-transparent, with reticulated or criss-cross veins, especially noticeable when the sunlight is passing through the leaves. Seeds, larger than those of *H. Brasiliensis;* rounded angled, greyish-blotched and somewhat elastic or yielding when pressed; these seeds are fairly distinct from the seeds of the *H. confusa*, they somewhat resemble *H. pauciflora* in general aspect, but are larger. General characters of tree, tall, good growth, umbrageous, fairly dense foliage.

"As there were two large trees at Government House Gardens, one yielding white latex and the other yellow, both identified at Kew as *Hevea Brasiliensis*, it is possible that these may be offsprings from the seeds of the latter. Unfortunately, the yellow latex-yielding tree was cut down, some two or three years ago, and it is impossible to obtain any record of the nature of the bark, seeds, etc., for comparison. It has been suggested that they are hybrids between *H. Brasiliensis* and *H. confusa*, but this can only be assumed for the present, since as is stated by Huber (1911): 'It is not proved that *Hevea* can hybridise, but it is not impossible.'

"It would be interesting to isolate plants from these seeds, with a view to ascertaining whether the offspring is constant, or if any variation on Mendelian lines results.

"Eight additional trees of a similar type, which have lately been tapped on the full herring-bone system for half the girth of the tree, yielded during the months of November and December, 1911, 45.4 oz. of dry rubber, being an average each of 5.7 oz., approximately.

ONE OF THE FIVE ISLANDS, TRINIDAD.

"The inferior trees have produced very little seed during the past two years, and all such seed has been collected and forwarded to the Laboratory, to avoid any possible admixture with good types. The policy of the new department has been to plant seeds from authenticated trees which have been proved to give good quality rubber and a large yield. Some 10,000 of these selected seeds have been planted out. The *Confusa* tree has been lopped of all its branches.

"The rubber produced by *H. confusa* and *H. pauciflora* is of inferior quality; the latter type hardly possesses any elasticity. Although they show a certain amount of wound response, the yield is very disappointing; it required ten tappings of *H. confusa* to obtain 2 oz. of dry rubber.

"A trial shipment of this so-called inferior rubber at St. Clair was recently valued at 4*s.* 3*d.* per lb., fine Pará being quoted at 4*s.* 6*d.* to 4*s.* 7*d.*

"The trees were tapped every other day on the following systems: (a) single and double herring-bone on half the girth of the tree; (b) single herring-bone on opposite quarters (only on the two largest trees); (c) double herring-bone on quarter girth of tree; (d) single herring-bone on quarter girth of tree.

"Of the above four systems, the last proved more favorable and was less injurious to the tree. The double herring-bone system, with either alternating or opposite lines, is apt to cause a place of damage where the gouge meets the vertical line."

I have quoted this in full because there has been so much interest among planters since they have learned that a tree that would pass inspection among many experts as a true *Hevea Brasiliensis*, was really quite a different *Hevea* and one that would prove a disappointment as a rubber producer.

Much of what has been done in rubber planting and in experimental work in Trinidad has already found place in these pages. So far, however, little has been chronicled about planting in the nearby island of Tobago. It is some twenty miles from the larger island and under the same government. It is a romantic spot, with enough in its historic past to make it one of the best known islands of the world. For example, a certain seductive weed, native there, was brought to England by Sir Walter Raleigh, smoked in a pipe, and called Tobago. That we call it Tobacco should not lead us to forget the birth place of "My Lady Nicotine." Were the English properly alert they would rename the island "Tobacco" and its fame would be everlasting. One would think that of the thousands who have drawn comfort and inspiration from the pipe, some, at least, would have builded here a shrine, a Mecca of smokers, where they could burn incense of their own special brand and dream in the very heaven of soporifics. But no; the fact is forgotten!

So, too, is the fact that this was the real island of Robinson Crusoe, and not Juan Fernandez in the far away Pacific. To really prove this and appreciate Defoe's story, that is the humor of it, one should do as we did, secure a copy of the book and read it in the hot tropical twilight. How poor Robinson must have suffered in his suit of goat skins, how that huge skin helmet must have heated his head. But the author, used to temperate climes, could not imagine tropical heat. Could he have visited Tobago, enjoyed its wonderful climate, seen its brilliant flowers, its gorgeous birds, its magnificient scenery, what a book "Robinson Crusoe" would be—fascinating though it is as written.

Castilloa AND CACAO, TOBAGO

John Paul Jones lived here for a short time at the beginning of the nineteenth century. Since then nothing of interest has happened—that is, of historic interest. But of commercial—very much. The leading town, Scarborough, with 2,500 inhabitants, has become quite a shipping port, and the

18,000 or more inhabitants have sent out to the world, sugar, cocoa, coffee, cocoanuts, nutmegs and rubber.

Tobago has the distinction of being the birthplace of, not only a most excellent system of tapping *Castilloa* trees, but an equally good system of coagulation.

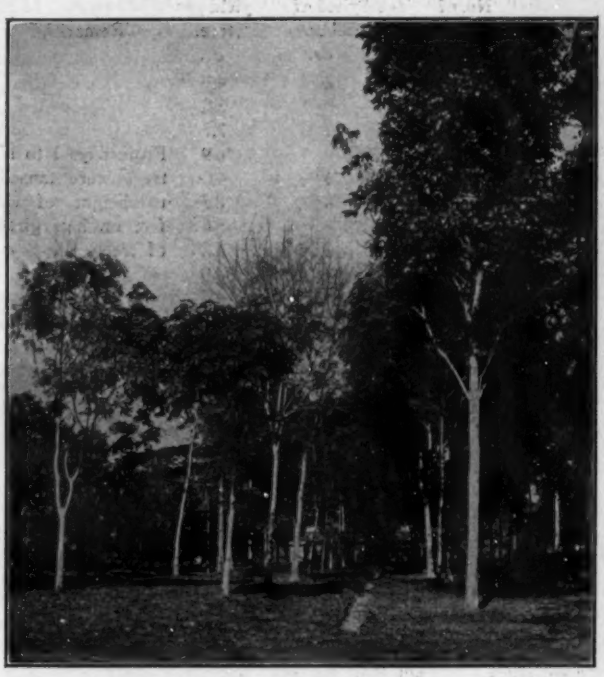
It will be remembered that almost all tappers of plantation *Castilloa* were in the habit of gouging the bark much after the fashion of *Hevea* tapping, either in zig-zags, half-herring bone, or adaptations of those systems. As the bark is exceedingly tough, a very strong knife was necessary and very definite channels were cut. Tobago, however, turned its back upon established procedure, and instead of cutting the bark away, simply pierced it with a broad chisel—getting just as much latex, and allowing the wound to heal very quickly. Then, instead of coagulating with alum or *amole*, Mr. Harry S. Smith, a planter there, constructed a centrifugal machine, which promptly and thoroughly coagulated latex. This machine was different from the ordinary centrifugal used in the coagulation of rubber; for example, it had certain valves which admitted of the escape of the "black water" while the machine was running at full speed. It also coagulated the rubber in something like 20 minutes, leaving only about one per cent. of water in the rubber. Taken by and large, the machine was wholly novel and thoroughly successful and Tobago—through Harry Smith—scored a second time.

Castilloa trees in Tobago seem to be excellent producers, and the planters there are tremendously interested in this tree. They believe in high tapping—often going 10, 20, 30 and even 40 feet up on the tree. At the present time, however, they are tapping about 20 feet up, using light bamboo ladders for that purpose.

The first chisels were made from ordinary kitchen knives with the blade broken off and sharpened at both sides and at the flat base. This gave a cleaner cut than the chisel would, and was in itself really a new type of tapping tool. The tapping knife is

Castilloa TREES, TOBAGO.

struck with a wooden mallet until the bark is penetrated—the latex dropping down into an oilcloth apron which is fastened around the base of the tree. About one-half of the bark area of the tree is tapped at a time—sometimes only one-third. To prevent the collection of too much scrap in the wounds, the bark



TWELVE-YEAR-OLD *Hevea*, EXPERIMENT STATION, ST. CLAIR.

is wiped off with a wet brush which is continually dipped in a can of water. Mr. Collens gives the following results of his *Castilloa* tapping on a typical estate in Tobago:

RESULTS OF TAPPING *Castilloa*, LURE ESTATE, TOBAGO.

First tapping from April 6 to May 18. (Trees Fruiting.)

Tapping day.	No. of trees tapped.	Total yield of dry rubber. lb.	oz.	Average yield per tree. oz.	Remarks.
1	2	1	0	8.0	From 1st to 19th day trees were tapped to height of 20 feet on half girth of tree.
2	6	3	12	10.0	
3	11	3	9	5.0	
4	12	6	7.5	8.6	
5	12	4	0.5	5.3	
6	9	2	2	4.0	
7	9	0	14	1.5	
8	6	2	12	7.3	
9	10	6	12.5	10.8	
10	13	4	14	6.0	
11	12	4	5.5	5.8	
12	15	4	5.5	4.6	
13	17	4	1.5	3.8	
14	12	3	1.75	4.1	
15	16	3	2	3.1	
16	14	2	14	3.3	
17	22	3	10	2.6	
18	7	3	10	8.3	
19	13	2	10	3.5	
20*	12	4	6.5	5.8	*Trees tapped to 20 feet height, but all round trunk.
21*	12	4	11.5	6.3	
22*	12	4	14	6.5	
23*	12	2	12	3.7	
24*	7	2	4	5.1	
25*	9	2	10	4.6	
26*	6	2	9	6.8	
Total.....	288	92	2.75	5.12	

Second Tapping from August 7 to September 15.

Tapping day.	No. of trees tapped.	Total yield of dry rubber. lb.	oz.	Average yield per tree. oz.	Remarks.
1	9	2	12	4.9	
2	10	3	8	5.6	
3	8	3	12	7.5	
4	9	3	14	6.9	From days 1 to 17 trees were tapped to height of 20 feet on half girth of tree.
5	9	2	4	4.0	
6	6	3	4.5	8.7	
7	10	3	8.5	5.6	
8	12	3	2.5	4.2	
9	12	0	12	1.0	
10	13	3	4.5	4.4	
11	12	1	4.5	1.7	
12	15	0	14	0.9	
13	12	2	2.5	2.9	
14	10	1	10.5	2.6	
15	13	0	10.5	0.8	
16	12	1	10.5	2.2	
17	12	1	0	1.3	
18*	12	1	12	2.5	
19*	12	1	12	2.3	
20*	12	1	6	1.7	*Trees tapped all round to height of 20 feet.
21*	8	0	10	1.2	
22*	10	0	10.5	1.05	
23*	12	0	10	0.8	
24*	5	0	10.5	2.1	
	Total scrap....	6	8.5		
	254	53	7.5	3.37	

Heveas, TOBAGO.

Tapping operations were only conducted for three hours per day, as the laborers lived some distance from the estate. The total cost of collecting and curing the rubber, on this account, was somewhat high—working out at 39 cents (1*s.* 7*d.*) per lb. The trees were manured with sodium nitrate three days before the second tapping was commenced.

AN ELEVEN-YEAR-OLD *Castilloa* TREE, TOBAGO.

The department is alive to the possibility tha almost any latex giver may turn out to be a rubber producer. Hence, everything is tested. As a matter of record Mr. Collen's tests of such trees as the bread fruit are apropos. The latices from the following trees were experimented on:

Good Luck Tree—*Thevetia neriifolia.*
Bread Fruit—*Artocarpus incisa.*
Bread-nut—*Brosimum Alicastrum.*
Frangipani—*Plumeria alba* and *P. rubra.*
Hedge cactus—*Euphorbia canariensis.*

With the exception of the products obtained from the Bread-nut and Bread Fruit latices the results are disappointing and of little or no value. The former would be useful for making chewing gum, but the cost of collection on a systematic scale would probably prove prohibitive.

I want to add as a postscript that there was a man in Trinidad (Jacobson by name) who is one of the most expert and artistic photographers in existence. He gave me most of my best photographs, and incidentally, I told him that any that I used I should tag "Jacobson Photographs." But Professor Carmody, Mr. Collens and many others also furnished me with fine photographs and I took some myself and they all got mixed. If, therefore, any reader sees a particularly striking picture in any of these articles, let him imagine that it bears the proper credit "By Jacobson."

(*To be continued.*)

Rubber Floors in Churches.

THE market for india rubber matting in colors to harmonize with the decorative motifs of the walls and art windows of churches is extending throughout North America. Notably fine effects are produced in Gothic and Romanesque designs, and in the interlocking rubber tiling the artistic effect is strikingly good in the reproduction of the motifs and the colors of the beautiful French and German tiles of the XIV and XV centuries.

In a number of contracts for rubber matting for churches and chapels in and about New York, the designs are after the geometrical pattern tiles that are so much used in the aisles of English cathedrals and college chapels. For the past five years, six churches a day have been built in our country. This concrete fact sets forth the importance of churches as buyers of floor coverings. Rubber matting and tiling are particularly appreciated by buyers of church and chapel floor coverings by reason of their noiseless, sanitary and non-slippery qualities. In Roman Catholic and Episcopal churches rubber matting is coming into general use, not alone for the covering of the aisles and chancels, but on the steps of the altar and on the platform of the altar, on which the clergy walk when celebrating the offices. Many accidents have befallen clergymen through falling on slippery marble altar steps and platforms. Before the art of making rubber matting artistic as to colors became developed, a few old clergymen in the Catholic church who were weak in the legs, to safeguard their feet when at the altar, put upon the steps and platform plain rubber matting. But this was condemned by the Vatican, because in theory, the floor of the sanctuary and the approaches to the altar are held by the Roman and the High Anglican Church to be a part of the field of Calvary, and none but green floor and step-covering is canonically correct. The proper shade of green is now obtainable from all makers and distributors of rubber matting.

RUBBER TILING IN A CHURCH AISLE.

Only a few years ago, the floors of the majority of the domestic churches and chapels were bare wood. Then came the general use of cocoa matting, and that was followed by the use of clay tiles and mosaic pavements for aisles in churches with large incomes. Now the movement is for the discarding of cocoa matting and carpets and clay tiles, and the substitution of rubber matting and rubber tiles in colors. When the present Cardinal Archbishop of Boston became a bishop at Portland, Maine, the pounding of the feet of thousands of his people on the hardwood and clay tile floors and stairways of his cathedral made such unendurable noises that he sent for a friend in the rubber trade and asked him what he could do. At that time rubber matting and tiles in colors to match ecclesiastical decorations were not made. But the bishop decided to put down ordinary rubber matting, and the noise ceased. That led to the general introduction of rubber matting in many churches in New England. Today, much of that drab-colored matting is being displaced for matting and tiling in right ecclesiastical colors. A number of clergymen and ecclesiastical architects with whom the writer has talked concerning this matter say that where rubber matting is used on floors and stairways neither the preachers nor the singers or organists are disturbed by late comers, as was the case when the flooring and treads of stairs were wood or stone.

One of the large churches in New York is about to discard carpeting and woolen rugs in its church, chapels, guild house, hospital and dispensary, and substitute rubber matting and tiling, not only because of the noiselessness of rubber, but because the chief physician of the parish hospital ascertained that after the carpets are thoroughly cleansed, which occupies eight men for a day, he has found billions of disease germs in a square foot of the carpet. An architect is planning changes in the flooring of one of the largest of the metropolitan churches, so as to have the floor slope at such an incline as will permit of the washing of the aisles and under each pew with hose when the flooring shall be of decorated rubber matting. The rector of the parish got the idea from watching men on the Lackawanna railroad's ferryboats cleanse the floors that are laid with decorated rubber matting and tiling. When the railroad used wooden or mosaic flooring for the smoking cabins of its boats, the deck hands could not keep the floors clean. Since rubber matting has been used, the smoking cabins are kept scrupulously clean, and at no more than the cost of cleansing the cabin for women.

All librarians give the preference to rubber flooring, and have brought about its use in almost one-fourth of the public libra-

ries of the country. Prospects of floor coverings in general are reported good.

Interviews with the heads of a number of large city retail carpet and rug houses indicate that, in their opinion, the sale of colored rubber matting and mats will in 1912 make a large gain over the sales of the past year. The president of a wholesale and retail carpet house says that the year of 1911 showed sales of about 125,000,000 yards of all kinds of carpets by all dealers. He estimates that the year's sales of rubber matting and tiles, in colors, were not above 2,500,000 yards. When it is considered that there are 14,567 stores in the United States that retail carpets, matting and rugs, and that only a few of these push the sales of decorated rubber matting and tiles, the thought is obvious that the field for increasing the consumption of these products is one in which much missionary can be done with profit.

BAPTISMAL PANTS.

While on the subject of rubber in churches, there is another interesting way in which rubber is employed, which, while somewhat removed from flooring, is distinctly a church use and worthy of consideration. The rite of baptism by immersion, as practiced by Baptists and several other denominations, and also by the two branches of Latter Day Saints—otherwise called Mormons—accounts for a small but fast growing branch of the making of india rubber clothing. Baptists in the United States and Canada have 58,000 churches and 44,000 ministers. The number of baptismal office india rubber suits used by these ministers is estimated at 37,000. There are several patterns. That which is most in use consists of a pair of boots and trunk hose in one piece that comes to six inches above the waist line, and a long coat wide in the skirts, that when on the person is shaped something like a military cape overcoat. The color in greatest request, at least among the younger members of the clergy, is cream or ecru. The Mormons use the same patterns, and the colors are light brown, ecru or red. In baptisms in rivers or lakes it is the usual custom of the Mormon missionary to don a red india rubber suit, the color being symbolical of the blood of Christ.

In a considerable number of large Baptist churches in eastern and western cities, candidates for baptism who are in delicate health, acting under medical advice, don india rubber suits when being baptized. These suits are provided by the church, and are almost like the suit worn by the clergyman.

In thousands of instances, the baptismal tanks in the churches are provided with rubber covered steps. Where the tanks are of wood they are, in most instances, covered with compounds high in rubber content. Following the sacrament of baptism by immersion as performed in thousands of churches, the candidates, after the immersion, are escorted out of the tank to the platform at the top thereof (which is covered with an india rubber mat to protect the carpet from dripping water) and there fulfil the remainder of the offices appointed for concluding the service. Some of these mats are as large as 20 feet by 40 feet.

The various branches of the Greek Catholic Church baptize by immersion. In Europe and Asia the Greek clergy never wear india rubber suits when baptizing, but in this country most of these priests have adopted when performing baptism, a suit somewhat like that worn by Baptist ministers, but belted in at the waist, and the coat part shaped like a cassock and surplice as worn by Roman Catholic and Episcopal clergymen.

A book for rubber planters—Mr. Pearson's "What I Saw in the Tropics."

AN EXAMPLE OF SOUTH AMERICAN CIVILITY.

IN hustle, prevalence of automobiles, height of skyscrapers, and in the number of malefactors of great wealth, North Americans undoubtedly have the advantage of their neighbors to the south, but when it comes to fine traits of courtesy the South Americans can teach us much.

Here is a case in point.

Two years ago the editor of THE INDIA RUBBER WORLD had the pleasure of attending a rubber conference at Manáos. As it was known that he had traveled quite extensively through rubber plantation countries, he was asked to deliver some lectures on plantations and other rubber subjects. This he did, accompanying his remarks with lantern slide pictures. The warmth of his welcome and the obvious appreciation of his audiences more than repaid him for his efforts. In this country an event of that sort usually receives a vote of thanks, and then is immediately wiped off the slate, and passes from memory.

But in Brazil things are done differently. A writer in a recent number of the "Monthly Review," published by the Amazonas Commercial Association, apropos of the selection of the editor to act as chairman at the Rubber Exposition Conference, delivered himself of this kindly, not to say glowing, eulogium, which a thoughtful friend has forwarded to this office. If it were submitted to the editor, he undoubtedly would protest that it was absolutely undeserved; but that is not the point. The point is this, that a small favor should two years after its performance still be so pleasantly remembered and be repaid with such a warm encomium. The tribute is entitled, "TERCEIRA EXPOSICAO INTERNACIONAL DE BORRACHA, 1912. UMA HOMENAGEM AO DR. H. C. PEARSON," which being interpreted signifies "The Third International Exposition, 1912. A Tribute to Dr. H. C. Pearson," and the writer continues, according to our conscientious translator, as follows:

"The Third International Rubber Exposition is to be held in New York from September 23 to October 3 of this year. To the position of vice-president Dr. H. C. Pearson, Editor of THE INDIA RUBBER WORLD, has been elected.

"The choice is most fitting. Dr. Pearson combines in himself all the qualities necessary to fill the position in the brilliant way that it calls for, and his election to the post gives us once more an opportunity to bear witness in these columns to our appreciation of our distinguished colleague.

"The London 'Times' also yields to none in its homage to Dr. Pearson. On the occasion of the First India Rubber Exposition in 1908, as is well known, the great London daily devoted to him a long and brilliant editorial, in just recognition and criticism of his valuable work. What the 'Times' has said expressses exactly the truth.

"The propaganda to which it refers was not limited to matters of interest to THE INDIA RUBBER WORLD. The editor's voyages of research have not merely a technical flavor; they show the spirit of one who delights in combining in his writings sound observations and ideas.

"The 'Congresso Commercial Industrial e Agricola' of 1910 brought Dr. Pearson as our visitor in Manáos. Everyone has pleasant recollections of his lectures to select audiences in the Theatre Amazonas. Illustrated by lantern views, they were intended to arouse our attention to the progress and huge growth of the rubber industry, and of rubber planting in the Far East.

"The pointing out of the dangers which threaten us, the competition from Asia, which possesses powers capable of overthrowing the supremacy of Amazon rubber in the consuming markets, has been the great aim of Dr. Pearson's labors for many years. To see the immensity of his services to this country in this respect, it is only necessary to glance through the volumes of THE INDIA RUBBER WORLD.

"The occasion of this new appointment should be taken advantage of by us to mark in a fitting manner our appreciation of Dr. Pearson."

IMPORTS OF AMAZON RUBBER DURING THREE MONTHS.

During the first three months of 1912 the United States imported rubber from Pará to the value of $6,512,165, and from Manáos to the value of $6,200,435.

The New York Rubber Exposition.

AN INTERVIEW WITH MR. MANDERS.

SHORTLY before this issue went to press a representative of THE INDIA RUBBER WORLD called upon A. Staines Manders, organizing manager of the International Rubber and Allied Trades Exposition, to be held in Grand Central Palace, New York, from September 23 to October 2.

The Grand Central Palace of New York is said to be the finest exhibition building in the world. It certainly lives up to its name. It is a palatial structure. It runs the whole block from Forty-sixth to Forty-seventh street, is about 275 feet in depth, and rises thirteen or fourteen stories high. The first three floors are arranged especially for exhibition purposes and extend the whole width and depth of the building. The second and third floors, however, have less floor space because of the large open court in the center looking down on the first floor

THE GRAND CENTRAL PALACE, NEW YORK.

Mr. Manders—who may be called a cosmopolitan Englishman, because, though a Britisher-born, he has been all over the world, and at one time lived long enough in New York to, at least partially, Americanize him—was found in his private office deep in business. Belated exhibitors were anxiously inquiring about space; early delegates from abroad were calling to pay their compliments, and to get the news. But in due time he managed to dispose of the other callers and the interviewer was ushered into his office.

"Mr. Manders," began the man from THE INDIA RUBBER WORLD, "the purpose of this call is to get all possible information about the exhibition that you are organizing; but first I would like to ask you how you ever came to get into this obviously sizeable undertaking."

"That is easy to answer," he replied. "In 1907 I was interested in the Travel Exhibition in London. Among the exhibits from South America were two big biscuits of rubber from Brazil. Some of the rubber men of England said to me, 'Why don't you get up for us a good rubber show?' Fifteen months from that time the first International Rubber Exhibition ever held was opened in London. It was in the fall of 1908. That created so much interest that a repetition of it was demanded, and the Second International Exhibition was held, on a much larger scale than the first, in July, 1911. Then it seemed very natural that the third exhibition should be held in the country, where the greatest amount of rubber is consumed, for America uses as much rubber as all the rest of the world besides. Moreover, a good many of the American visitors to the London show said, 'We ought to have one.' So that is the way the New York Rubber Exposition came about."

"How is this exposition going to compare, in size, and in other respects, with the two London shows?"

"Well, in point of size, it will occupy about four times as much floor space as the first London show, and about the same floor space as the last London show We had more room in London last year because we occupied two buildings, and that enabled us to spread the exhibits a little more. We used there 160,000 square feet of space, and we will use here (including the room occupied by the rubber moving picture shows) 140,000 square feet, which is the total of the three exhibition floors. In point of exhibits, the New York show will be equal in every respect to the last London exhibition—and in many respects superior to it. It will be noticeably superior in the extent and variety of manufactured goods displayed; and even in the crude rubber department, where London was particularly strong, the New York Exposition will excel in a number of features. Brazil, for instance, will contribute five times as much crude rubber on this occasion as it did in London. The Brazilian contributions, all told, will amount to 100 tons of rubber.

"There will be a number of working exhibits here quite ahead of anything seen before. There will be an experiment station, open to visitors. The United States Government will have a testing plant presided over by Government experts."

"How many divisions will there be in the exposition?"

"There will be three. First, manufactured goods and manufacturing machinery, which will occupy the whole first floor; second, the allied lines, including reclaimed rubber, chemicals, compounding mixtures, etc., which will occupy the second—or, as it is usually called, the mezzanine floor; and third, crude rubber, which will fill the third floor.

"Twenty different governments have sent exhibits of crude rubber. Brazil, as I have said, is sending 100 tons of wild rubber—chiefly *Hevea*. Bolivia will also send a fine exhibit of *Hevea*. Dutch Guiana will exhibit *Castilloa;* and we will have plantation exhibits from the Federated Malay States, which will send 18 tons. Ceylon will show ten tons; and smaller quantities will come from the Dutch East Indies, Indo-China, Burma, the Hawaiian Islands, and many other points. Some of these exhibits—notably two fine lots, one of over three tons from the Federated Malay States, and one of two and one-half tons sent by Ceylon, will be entered for the gold, silver and bronze prizes offered by the Rubber Growers' Association of London.

"In the display of rubber manufactures, I can safely say that practically nothing will be lacking. Every type of manufactured goods—footwear, clothing, tires, mechanical goods, dipped goods, molded goods—all will be shown; and some of them—like fire hose—will be shown in the making. There will also be a working exhibit in the rubber reclaiming department, and the interested visitor can see how this industry is carried on."

"What special features will there be?"

"One novelty, and a feature quite unlike anything seen in either of the other international rubber shows, will be a horse traveling, at whatever rate of speed he may be disposed to display, over a rubber road. The road will be constructed of rubber blocks made by a Chicago manufacturer. It will be a moving road so that the horse can keep in motion, and yet not get too far away from the rest of the exhibits. There will also be rubber flooring everywhere; in the entrance, on the stairs and in front of many of the booths, for a great many of those who have taken space have arranged to cover their space and the adjacent passages with rubber. The visitors will find it the easiest-walking exhibition hall they were ever in. Another feature, somewhat unusual, and of a character to meet with the decided approval of out-of-town people, will be the generosity displayed by some of the manufacturers in furnishing—not only free telephone booths for their customers, but expert stenographers, who will do their correspondence for them rapidly, cheerfully and gratis."

"Do you expect a large attendance from abroad? I think it safe to assume that the home attendance will be of noticeable proportions."

"Yes, there will be a great many foreign visitors. A large number of governments have sent representatives, and in addition to that, states and provinces and chambers of commerce, and other organizations in the rubber countries have sent delegates. There will be 50 delegates from Brazil alone, with Dr. Dahne as chief official commissioner."

"The exhibition will begin, I suppose, promptly on September 23."

"It will open, without doubt, at noon September 23. We had hoped to have President Taft, who has been kind enough to act as patron of the exposition, present to make the formal opening, but he advises us that unfortunately he had already agreed to attend the Hygienic Congress which meets in Washington on that same date; but he expects later to visit the exhibition. While it will open on the 23rd to the public, there will be a private view, open only to members of the press, the day preceding. There is every reason to believe that the attendance is going to be large, because in addition to rubber men and general visitors, there will be several special days, when a large number of people will come because of their interest in some particular country or locality. For instance, September 24, is Brazil Day. Four thousand invitations will be sent out by the representatives of that government, and the Ambassador of Brazil will be present to receive the guests. There will also be a Ceylon Day; and so many people from Akron have expressed their intention of visiting the show, that there will probably be an Akron Day. On the night of the 3rd of October there will be a banquet open to those who have been connected with the exhibition."

"I suppose that will be well attended."

"Well, the closing banquet at the London Exhibition was

A. STAINES MANDERS.

attended by over 260 people, and was a delightful—not to say brilliant event. I do not think New York is likely to fall behind London in this particular part of the exposition."

The interviewer did not ask Mr. Manders much about himself, but people who attended the London International Rubber Exhibition held last summer say that he is a marvelous organizer, and that he will give the rubber industry of America a genuine revelation of itself.

THIRD INTERNATIONAL RUBBER CONFERENCE.

IN the year 1893, at the Columbian Exposition in Chicago, a little group of chemists from many lands met to confer on topics of mutual interest. They incidentally laid the foundations for that tri-ennial conclave which is known as the International Congress of Applied Chemistry. The eighth meeting of this congress will be held in New York City from September 6th to 13th, 1912.

As the discussions at these meetings center almost entirely on chemistry, so the International Association for Testing Materials has devoted most of its energy to the solution of problems connected with raw materials used by engineers.

With these two conventions as "forerunners," the Third International Rubber Conference will convene in spacious chambers at the Grand Central Palace in New York City, September 24th, 1912. A considerable number of chemists and engineers of the rubber industry have communicated with the secretary, with regard to the character of the topics which will be brought forward for discussion at the meetings of the Rubber Conference.

It is a matter of common knowledge that a large number of national societies and railroad corporations have spent considerable time and energy in developing specifications for materials; so that it is not surprising that most of the letters thus far received have suggested that the question of "Specifications" be ventilated.

Some manufacturers have well-defined opinions concerning the new fire-hose specifications; and probably more time has been spent in discussing the subject privately than would have been the case if the manufacturers and the underwriters had met in general session, there to thrash out their differences.

This is but one of the very sensitive points of interest which should be considered at a conference devoted to the interests of manufacturers and consumers of rubber goods.

DR. FREDERIC DANNERTH.

Similarly, the specifications prepared by certain railroad companies are considered by some to be beside the mark. The United States Navy, the manufacturers of insulated wire—these and many others are interested in the question of specifications.

It was with this in view that invitations were sent to the chief chemists and the engineers-of-test of the principal American railroads, the National Fire Protection Association, American Society for Testing Materials, the United States Department of the Navy, the United States Bureau of Standards, and the American Institute of Operating Engineers.

Aside from these interests, there will be in attendance at the Conference, representatives of rubber goods manufacturers, planters of rubber from tropical countries, textile specialists and others who are vitally interested in the future of the rubber industry. After a careful consideration of the subjects to be discussed at the Congress of Applied Chemistry, it was considered desirable to take up at the Rubber Conference those topics which appear to be of more immediate importance to the manufacturer and consumer.

In order to show the careful thought that our best rubber chemists are giving the work of the Conference, abstracts are given below from a letter received from one correspondent:—

"I suggest these topics:

"1. What subjects should be in well-balanced specifications for rubber articles?

"2. Has a chemical analysis any practical value as a means of determining the quality of vulcanized rubber?

"3. Of what value are physical tests for determining the quality of vulcanized rubber?

"4. How can the manufacturer and consumer best co-operate in the development of fair and reliable specifications?

"5. For what articles are specifications valuable, and for what articles are they impossible?"

Other correspondents have suggested such topics as:

6. Asbestos-rubber packings: their uses and their limitations.

7. Methods for "pre-determining" the life of rubber compounds.

8. Materials particularly well adapted for insulated wire compounds.

9. The value of tensile strength tests in the appraisement of raw rubber.

10. The influence exerted by lead fillers on vulcanization, and the "life" of a compound.

11. Physical and chemical methods for evaluating shoddies.

12. The value and disadvantages of asphaltums as fillers.

13. The applications of antimony sulphide in the manufacture of druggists' sundries.

14. Rational specifications for duck used in hose and belting.

15. Is it wise, or even proper, for a customer to specify both the raw materials and the physical properties of a manufactured article?

16. "Scientific Management" in rubber works.

17. Trade customs in the rubber industry.

These are but a few of the many topics which have been submitted, and it is sincerely hoped that the engineers and chemists who have specialized in the problems of the rubber industry will give the matter their earnest consideration.

Probably the first attempt which was made to bring rubber goods manufacturers in consultation with the consumer was the Navy Conference, which was held within the past year, and which brought out such a frank expression of opinion. It has frequently been noted that there is a tendency on the part of consumers to question the motives of the manufacturers, but experience has shown that the most progressive manufacturers are those who desire to co-operate to the greatest possible extent with the men who purchase their products.

The Executive Committee, which has been formed to act in an advisory capacity to the Conference consists of the following: E. S. Land, U. S. N., Washington, District of Columbia; D. A. Cutler, New York; Dr. Lothar Weber, Boston, Massachusetts; Dr. W. C. Geer, Akron, Ohio; Dr. S. P. Sharples, Boston, Massachusetts; Dr. Eugenio Dahne, Brazil; C. E. S. Baxendale, Federated Malay States; F. Crosbie-Roles, Ceylon; A. Staines Manders, London.

The president of the Conference is Henry C. Pearson.

Persons whose name, title and address are forwarded promptly to the Honorary Secretary will receive invitations to attend the Conference.

Details of the arrangements for the Conference meetings will be ready for distribution September first, and those desiring the same should apply by card or letter to Frederic Dannerth, Honorary Secretary, Third International Rubber Conference, Grand Central Palace, New York City.

Fifteen of the principal American railways will be represented at the Conference through their chief chemists and engineers of tests.

WHAT NEW YORK WILL SEE IN MALAYAN RUBBER.

Previous to the shipment of the 20,000 pounds of rubber to be comprised in the Malayan exhibit at New York, it was placed on view at the Masonic Hall, Kuala Lumpur. The exhibits were contained in 120 packing cases. Six qualities were shown—smoked and unsmoked sheet; fine, blanket, scrap and bark crepe.

The "Malay Mail" adds:

"Sungei Kapar was the biggest contributor with 3,000 pounds of rubber of every variety. They forwarded eight cases of block, and although it was more than an inch in thickness it was transparent. Manufacturers at previous exhibitions have paid little attention to specimens of block rubber, owing to their inability to determine whether it was pure rubber throughout, but it is safe to say Sungei Kapar's exhibit will do a great deal to destroy the prejudice.

The History of Synthetic Rubber

IN dealing with the history of synthetic rubber production, Dr. Fritz Frank, of Berlin, in a special communication to THE INDIA RUBBER WORLD, has recalled the various raw materials and chemical processes hitherto employed for that purpose. He remarks at the outset that his idea has been to make his statements intelligible to the non-professional reader, while the use of chemical and technical expressions could not be entirely avoided.

ISOPRENE.

As it is known, the basic material of synthetic rubber is, in the first place, a carbo-hydrate, isoprene, which was first obtained from rubber itself by Williams in 1860. Within the last three years it has been found that not only isoprene itself, but also its kindred carbo-hydrates, which have two double linkages, give the same or analogous reactions, and can therefore, by chemical and physical means, be transformed into rubber substances.

Bouchardat (in 1879) was probably the first to obtain from isoprene a body like rubber. Tilden was then, at a later date, the first to define the formula of the constitution of isoprene, being likewise the first to produce these carbo-hydrates from a basic material other than rubber. He obtained the desired result by conducting oil of turpentine vapors through red-hot pipes, transforming these artificial products into a substance of the nature of rubber.

Other workers upon the above-named carbo-hydrate, which forms an extremely volatile and mobile substance (boiling at 38 degrees Cent.), were Gladziatzky, Ipatie v. Wittorf and a number of other noted chemists; those of more recent date including Kondakow, Euler, Blaise and Courtot. All these reseaches had, however, only purely scientific importance. Neither the above-named scientists, nor others unnamed, succeeded in obtaining real rubber from this carbo-hydrate and its homologues.

In consequence Tilden, the genial English scientist, declared on the occasion of the First International Rubber Exposition of 1908, in London, that the attempt to obtain rubber in this way would have to be finally abandoned. His expressions of that time must, in Dr. Frank's opinion, be regarded as having been justified; the results obtained by him and Williams not having been reproduced by any other scientists in subsequent experiments. Even Kondakow, who now claims to have really made rubber from butadiene carbo-hydrates, following up the work of Tilden, did not, in Dr. Frank's opinion, actually do so. According to the descriptions given, the preparations obtained by him displayed either too low or too high a stage of polymerization, too large a molecule being in the latter case formed by combination. His first product was therefore still soluble in alcohol, while his specially solidified material was no longer soluble in benzine, benzole or other rubber solvents.

RESEARCHES OF HARRIES AND HOFMANN.

Meanwhile, Harries, of Kiel, the German scientist, had been able to give a very probable interpretation of the formula of genuine rubber, characterizing the basic carbo-hydrate as dimethylcyclooktadiene. From his researches it appeared in the highest degree probable that success would yet attend the effort to build up rubber from isoprene, or from products of a similar nature to this carbo-hydrate.

While Harries was still engaged with his investigations the Bayer Factory of Elberfeld (one of the leading chemical establishments) had occupied itself with this question. It started from the principle that the matter should rest on a purely scientific basis, and had first of all produced by synthetic means chemically pure isoprene.

It was Hofmann (the director), in conjunction with Coutelle, who was able to solve this question in the factory named. He employed a product of relatively low value, resulting from coal-tar distillation (*p*-kresole) as a basic material, transforming it into isoprene by a complicated process. From this material (after a large number of experiments with negative results) he finally succeeded in obtaining a rubber product, which he submitted in 1909 to one of the leading German rubber factories, where it was worked up into rubber goods.

This first artificial rubber, produced on a manufacturing scale, was made from isoprene, by exposing the latter for a long time in closed tubes to the influence of light, and later on to light and heat (by polymerization). The product thus obtained not only acted like rubber when being manipulated, but from a scientific point of view was distinctly recognizable as rubber. This process is patented, and is the basis of an extremely large number of patents applied for and granted in all countries, numbering upwards of 130, according to Dr. Frank's published lists.

ENGLISH RESEARCHES.

About the same time similar results were obtained by the independent researches of scientists residing in England. Of these, Dr. Frank refers to Heinemann, Wolteneck, Silberrad and others; adding that a certain credit is due to Heinemann, who built up his processes upon purely speculative work. Up to the present it is, however, not known which of them is capable of development upon an extensive technical scale.

Important features of the researches of the English and German scientists referred to, are the processes for obtaining an increased yield of isoprene from oil of turpentine: thereby considerably reducing the temperatures of reaction, as well as the pressures. These resulted through working in a space with diluted air, through the use of metals acting catalytically, through the dilution of the oil vapors exposed to the influences named, through indifferent gases and through other means. Of predominating importance are the processes elaborated by Harries, Gottlob, and Staudinger, based on conducting the vapors of oil of turpentine and other terpene carbo-hydrates (with or without dilution with indifferent gases, etc.) over a wire brought by electricity to a state of incandescence; the products of decomposition thus resulting being immediately caught up. For this purpose an "isoprene lamp" is used.

While this process is of considerable technical importance, it is, however, still founded upon a terpene carbo-hydrate as a basic material. The last-named substances are, like rubber, vegetable products, being thus, in a technical sense, only available to a limited extent.

It is different with processes based on the employment of acetylene, acetone, alcohol, starch and similar materials. But the yields obtained by these processes, Dr. Frank adds, are as yet so small that their technical prospects can only be regarded as limited. But, it is remarked, should the labors of Fernbach, Perkins and Ramsay succeed in causing the fermentation of starch and sugar in such a manner that amyl—and butyl—alcohol will be the main products, the matter would present a different aspect. Ehrlich of Breslau had already influenced fermentation in the direction of forming amyl-alcohol (German patent 177,174), but technical difficulties have prevented the carrying out of this scientifically important work.

OTHER SYNTHETIC PROCESSES.

Some other processes are referred to by Dr. Frank as having more favorable prospects from a technical standpoint, for the future production of artificial rubber. These are based on the

isolation of certain carbo-hydrates with two double linkages; on the one hand, from the gases obtained in the conversion of coal into coke, and on the other hand, from those which accompany petroleum, and are found in its first gaseous distillation of the same. He expresses the opinion, that if this principle can be carried out in conjunction with a sufficiently favorable yield, a source will have been discovered for the production of a certain, though probably limited, quantity of artifical rubber. The solution of the problem thus involved has already been accomplished from a scientific point of view.

Meanwhile it has been found possible, by a technically simple process, to transform into rubber these basic carbo-hydrates, which are extremely volatile, and constant in a limited degree. This result was accomplished with all the homologues of isoprene, hitherto obtained from natural products or accessible by means of synthetic processes, as well as with isoprene itself. Prominent in these researches in Germany were the Elberfeld Farbenfabriken, already referred to, as well as Professor Harries, the Badische Anilin und Soda Fabrik, and the Chemische Fabrik, formerly E. Schoring, Berlin.

In England Hodgkinson, Matthews and Strange, partly alone and partly in conjunction with Perkin, Weizmann and others, first succeeded in defining advantageous methods for carrying out the same work, their discoveries, besides having scientific value, being protected by patents. According to the Hodgkinson process, sodium amid, and by that of Matthews and Strange, alkaline and earthly metals, metallic nitrogen compounds and like substances are used. Rosins of various origins and other natural products have also been employed as basic materials.

GENERAL PRINCIPLES OF SYNTHETIC RUBBER.

Everything repeated again and again in the daily papers as to the technical production of artificial and synthetic rubber is, Dr. Frank remarks, nothing else than beating up froth. Rubber cannot be made from any desired material, but its production is connected with scientific principles. The latter are, in any case up to the present, based upon materials difficult of access, and under the most favorable circumstances to be prospectively obtained only in limited quantity.

The above, Dr. Frank remarks, is a rough outline of what has up to the present been done in this extensive field, although it has been impossible to present it in complete scientific form.

He makes the following deductions from his review of the synthetic rubber question:

SUMMARY.

1. The production of synthetic rubber has been successful in the scientific laboratory, and in a small scale in the factory.
2. The rubber obtained has partially the same properties as inferior natural rubbers.
3. The technical problem of the production of synthetic rubber has not begun to be solved, and will still have to face interminable difficulties.
4. Above all, no reliable proof has been adduced, which renders certain the competition of synthetic with plantation rubber.
5. An equality of price between the synthetic and the natural product is to be expected in years, but as to a parity of quality nothing can at present be said. Meanwhile, from a technical standpoint, the synthetic products are wholly of low value.

THE ENGLISH FINANCIAL WORLD AND SYNTHETIC RUBBER.

In commenting upon the latest developments in the synthetic rubber question, the London correspondent of the "Gummi-Zeitung" remarks that the directors of the new company could have done nothing more unskillful, than to mix up their future (which perhaps was favorable as to the acetone and fusel-oil patents) with the question of artificial rubber. The English press, it is added, was annoyed, not at the discovery itself, but at the manner in which the whole matter was brought upon the scene. Attention is further called to the fact that the amount of capital alleged to have been subscribed up to July 6 was only £80,000, forming about one-sixth of the total of preference shares for which subscription had been invited.

It is further added that: "Enthusiastic England has not troubled about synthetic rubber, and has quietly gone upon its summer holidays, after having qualified the whole matter as a 'bluff.'

"Had the matter taken the form of a national subscription for continuing the experiments, it would have met with abundant support from the thrifty but adventurous English. . . . . But by extreme haste, and the premature disclosure of the discoveries of their scientists, the financial advisers of the syndicate have done much injury to the cause of future researches as to artificial rubber. . . . . English rubber manufacturers have not been disturbed, but have been endeavoring to keep up with their orders."

THE NEW BRITISH SYNTHETIC RUBBER PROCESS.

AS having organized the committee of investigation, represented by Professor Perkin at the recent meeting of the Society of Chemical Industry, Messrs. Strange and Graham have addressed a letter to the "Financial Times." They remark that the starch used in the manufacture of synthetic rubber contains various substances as basic materials. Starch from maize costs on an average less than a penny (2 cents) per pound; only five operations being needed to convert it into rubber. The only supplementary materials required are: common salt, costing about 30s., or $7.50 per ton; lime, which costs about the same; and coal, costing 15s., or $3.75 per ton. Taking this basis of raw material cost, it is added, a pound of manufactured rubber would not cost more than 2 pence, or 4 cents. With such cheap and abundant raw materials, it is urged that there is a large margin for expenses of manufacture, if a shilling (24 cents) per pound, is taken as the cost price. It is, in fact, considered probable, that when experience will have perfected the manufacturing installations, about to be constructed on a large scale, the price will be established at between 4d. (8 cents), and 6d. (12 cents) per pound.

With reference to Professor Penkin's opinion that the selling price for several years would be 2s. 6d. (60 cents) per pound, it is remarked that with such a price, more than one-half of the world's rubber crop would leave no profit. This proportion would include all the wild rubber collected, including Pará. It is, therefore, considered probable that the first phase of the struggle which will inevitably take place, will be between plantation rubber and synthetic rubber.

Consequently, it is deduced, allowing for a rapid and steady increase in consumption, that several years will elapse, before synthetic rubber will notably affect the plantation industry.

A BELGIAN EXPERT'S OPINION.

In dealing with this subject, M. Gustave Van Den Kerckhove, of Brussels, the rubber expert, remarks that a general misconception prevails, to the effect that researches as to synthetic rubber only date from the time of the "boom" of 1910. On the contrary, as he remarks, they have extended over a much longer period. But, he adds, out of the numerous samples of artificial rubber he has examined during the last twenty years, he never found one meriting comparison with natural rubber.

In reply to the contention which has been put forward that synthetic indigo, camphor, silk, vanilla, musk and other substances have proved successful, he answers:

"In all these products, it is not necessary to incorporate elas-

ticity; while, in natural rubber, it is this 'nerve,' which is the life and vitality, and, in my opinion, cannot be obtained by synthesis.

"But, it may be urged, what about gutta-percha? It is true that there exists an excellent formula for synthetic gutta-percha, but, I again reply, that in gutta-percha this vitality is not required; in fact an elastic gutta-percha would no longer be regarded as good.

"This does not amount to saying that all these chemical researches have been fruitless. Absolutely not so. I render homage to all these zealous investigators, for many of these synthetic products find industrial applications in compounding."

Commenting upon recent sensational discoveries M. Van Den Kerckhove remarks that capitalists who have been led to think we are approaching the end of rubber planting and the ruin of the Amazon and the Congo, will soon find that this so-called "artificial rubber" is neither better nor worse than some hundreds of other patented rubbers.

He suggests that capitalists, to whom a synthetic rubber is submitted, should insist upon likewise receiving a vulcanized sample of the article; putting both samples in their safe for six months. At the end of this time, the writer remarks, nine times out of ten the crude synthetic rubber will have become hard and friable, while the vulcanized sample will, in all cases, have hardened and become brittle. These remarks apply, he adds, to synthetic rubber not containing an admixture of natural rubber.

In conclusion M. Van Den Kerckhove says: "Rubber planters need not be alarmed. . . . In spite of the interesting work being pursued in England, in Germany, in France, in the United States, in Italy, and even in Belgium, the synthesis of rubber is a mirage. . . . Seen from the distance it looks something, when approached it is nothing."

THE ALL-CEYLON EXHIBITION.

ONE of the most interesting events in the industrial history of Ceylon has been the "All-Ceylon" Exhibition at Colombo, held during the first week of July last, after months of laborious preparation. While tea, cocoa-nuts and other Ceylon products were fully represented, rubber occupied a leading and conspicuous position. The rubber exhibit was under the auspices of the Ceylon Agricultural Society, with the co-operation of the thirty or more local planters' associations.

THE RUBBER EXHIBIT.

Among the special features of the rubber exhibit was a large block of Lanadron rubber, which was exhibited at the Ceylon Rubber exhibition in 1906 and has since been exposed to light and air at the Peradeniya Museum. The placard was labelled

"WILL PLANTATION RUBBER KEEP?"

and the answer was supplied by the rubber itself, which appeared to be in good condition, while another sample was from Henaratgoda, from one of the original trees, which had been kept for 29 years. This, of course, had very little of the appearance of rubber about it, but it showed to what an extent rubber will keep. Some hard Pará rubber was also displayed; samples of biscuit, crepe and sheet rubber also being shown together with a biscuit of mud rubber. The results of slow drying were depicted by several pieces of rubber treated differently. Another specimen illustrated tacking produced by oxidation with potassium permanganate. Some *Ficus* rubber from the 1906 Exhibition and *Hevea* latex preserved by formalin and ammonia, were interesting; as were also the exhibits of *Castilloa*, *Ceara* and *Manihot Dichotoma*, crepe rubber, and some of the record yields from Henaratgoda.

DISEASES OF RUBBER PLANTS.

To the planter perhaps the most interesting portion of the exhibit was that relating to diseases. In this section were cuttings and branches showing the ravages of insects on rubber trees. Shot hole boring beetles, as shown, are also responsible for a good deal of damage; while there was also a good illustration of the "Nodule" disease in rubber trees. Carpenter bees are wretched pests and the tremendous holes bored by these insects were indicated in sections of trees, specimens of the male and female of the bees being shown. The huge cocoanut beetle and other insects interested those anxious to deal with these pests. There were also exhibited specimens of the old rubber prickers, and tapping knives; the latter being shown in their various stages up to the modern implement.

Various important official functions marked the course of the exhibition, such as the annual meeting of the Ceylon Agricultural Society, dealt with elsewhere. Ceylon and its officials, from the Governor downward, are to be congratulated on the success which has attended the "All-Ceylon" Exhibition.

RUBBER MACHINERY AWARDS.

Special interest attached to the exhibits of rubber machinery, for which the following prizes among others were awarded:

MACHINERY EXHIBITS.	EXHIBITORS AND PRIZES AWARDED.
David Bridge's Rubber Washing Mills.	Special Silver Medal, Colombo Commercial Co.
Michie-Golledge Rubber Machinery.	Gold Medals, Walker Sons & Co., Ltd.
Shaw's Creping and Rolling Machinery.	Silver Medal, Walker Sons & Co., Ltd.
Model Rubber Factory.	Gold Medal, Walker Sons & Co., Ltd.
R. Boby's Rolling and Creping Machinery.	Certificate of Honor, Eastern Produce Co., Ltd.
Siriwasa Smoke Drier.	Cup, Siriwasa Estate (Dr. W. A. de Silva).

The awards for rubber demonstrated the further success of Bridge's Improved Rubber Preparation Machinery, including the following prizes for rubber prepared with the Bridge machinery:

PAMBAGANA ESTATE, Cup and Gold Medal for thick blanket fine amber crepe, being the best rubber in the show.

TALAGALLA ESTATE, Silver Medal for scrap rubber in crepe form.

TROY ESTATE, Silver Medal for crepe rubber.

It will be noticed that the Pambagana Estate produced with Bridge machinery the best rubber in the exhibition.

AWARDS TO BRIDGE MACHINERY.

The direct and indirect honors lately obtained by David Bridge & Co., Ltd., of Castleton, Manchester, at the Colombo "All-Ceylon" Exhibition, follow up numerous previous successes achieved elsewhere. This company was awarded two "Grand Prix" diplomas at the 1910 Brussels International Exhibition, for rubber-preparation machinery and driving mechanism. It likewise obtained the First Prize Medal at the Coomassie Agricultural Show of 1908, for rubber-preparation machinery, as well as the Gold Medal for the same class of machinery at the Mexican Exhibition, held at the Crystal Palace in 1908. The same company also exhibited at the London Rubber Exhibitions of 1908 and 1911, but on the two last-named occasions it was distinctly understood that no awards would be granted.

CEYLON AGRICULTURAL SOCIETY AND THE NEW DIRECTOR OF AGRICULTURE.

One of the principal features of the recent "All-Ceylon" Exhibition at Colombo, was the annual meeting of the Ceylon Agricultural Society, held under the presidency of the Governor during the first days of the exhibition.

In the annual report, the services of Dr. J. C. Willis, the former organizing vice-president and director of the Ceylon Botanic Gardens, who lately retired from the British government service, to take up the directorship of the Rio de Janeiro Botanic Gardens, were appropriately referred to.

In the report, the work of the existing model and experimental gardens was fully described, as well as the agricultural shows held in various districts. The idea of holding an "All-Ceylon" exhibition had originated with Mr. Drieberg, the secretary of the society, but had been brought into prominence through a resolution introduced at a meeting of the board held in April, 1911, by Mr. John Ferguson, who had then lately returned from England. Hence the close connection of the society with the development and carrying out of the plan for the exhibition.

MR. LYNE'S PAPER.

The chief interest of the occasion centered, however, in the paper read by Mr. R. N. Lyne, director of the new Agricultural Department of Ceylon.

Mr. Lyne has had considerable agricultural experience, both in England and in New Zealand, and was for some years Director of Agriculture in Zanzibar and Manager of the Government Plantations. Two years ago, on the recommendation of the Director of the Imperial Institute, he was lent, with the approval of the Foreign Office, to the Portuguese Government to organize a Department of Agriculture in the Province of Mozambique. Mr. Lyne is the author of numerous reports and papers on tropical agriculture, and is a member of the British Committee of the International Association of Tropical Agriculture.

DOMINANT MANURE FOR *HEVEA*.

In his opening remarks, Mr. Lyne appealed to the indulgence of the experienced rubber planters present, recognizing that it would be presumptuous, with his short experience of Ceylon, to address them on the cultivation of *Hevea*. Still he ventured to assert that though rubber planting has been established on a paying basis in Ceylon, there is very little known about the right treatment of the *Hevea* tree. To use his own words:

"Lawes and Gilbert pursued their patient researches for several decades, before venturing to pronounce nitrogen the dominant manure for wheat, or potash for clover. Wheat feeds in the top few inches of the soil and occupies the land but a few months. *Hevea* searches a vast area in comparison, and continues for three-fourths of a century, perhaps more. How long, then, are we to be allowed before pronouncing upon the dominant manure for *Hevea*? . . . There are many problems connected with the cultivation and tapping of rubber, which the new Department of Agriculture will, I hope, solve, or help to solve."

YIELD OF *HEVEA* WITHOUT MANURING.

Mr. Lyne further discussed the question of the rich return of a *Hevea* tree at Heneratgoda, giving eighteen pounds in one month's tapping, and yielding in that proportion, more or less, for six months or more in the year. In three and one-third years it yielded 275 pounds of rubber, though it had never been manured. His view was that in the tropics soil was of less importance than a proper balance of sun and rain. Thus eliminating the influences of individual peculiarity, manure and soil, the vigorous tree-growth is due to three other conditions—light, air and room. Manuring, he considered, might actually have done harm.

Dealing with the general aspects of the question, Mr. Lyne expressed the opinion that we are possibly devoting too much attention to the artificial side of rubber cultivation—manuring and methods of tapping, instead of devoting our energies to removing obstacles from the path of nature. He added that each individual tree should be given full play for the utmost exercise of its functions.

AGRICULTURAL EDUCATION.

Among the objects to which the new department will be called upon to devote its attention, is the question of the agricultural education of the native population of Ceylon, in line with the efforts being made in other parts of the British Empire. In his opinion the material available in Ceylon compares very favorably with that of the other countries within his ken.

According to its report, the society employs nine instructors, seven of whom are attached to the Singhalese districts and two to the Tamil sections.

PARA VS. PLANTATION RUBBER.

ONE of the most salient features of the London market of late has been the strong position of Brazilian rubber, and its higher value compared with plantation grades. During the first three weeks of August, the London price of fine Pará ranged from 4*s.* 10½*d.* to 5*s.* 2*d.*, closing at the latter figure on the 21st. That of pale crepe, on basis of first latex, varied between 4*s.* 9¼*d.*, and 4*s.* 11*d.*, reaching the high point on the 21st. Both kinds started at 4*s.* 10½*d.* on August 1, winding up on the 21st with a higher price for Pará of 3*d.* per pound.

It is remarked that this difference in price will bring plantation rubber more prominently under the notice of consumers, hitherto prejudiced in favor of the Brazilian article.

That this development has resulted is practically attributed to the fact that Brazilian stocks are held in few hands.

According to the report of the United States consul at Pará, quoted elsewhere, arrangements have been definitely concluded by the Bank of Brazil to facilitate the disposal of the syndicate stock to *bona fide* manufacturers, with a view to preventing its manipulation by dealers. Sales and shipments are to be made to the customers direct from Pará.

The Pará holdings of the syndicate, it will be remembered, were 2,240 tons on July 1. This quantity had been reduced by the middle of August to 1,200 tons. It is understood that a large part of the sales were to American dealers and consumers at full rates.

Another element of strength in the market for Brazilian rubber has been the continued deficiency in visible supply, as compared with last year. On July 1 the returns stood: 1911, 10,950 tons; 1912, 6,370 tons; the decrease being thus 4,580 tons. The figures for August 1 were: 1911, 9,510 tons; 1912, 5,400 tons, the diminution in visible supply being thus 4,110 tons, nearly as much as on July 1.

WANT BALATA BELTING.

A prominent British firm with offices in the Far East has written to one of the commercial agents of the Department of Commerce and Labor, Washington, District of Columbia—consular report No. 9205—that it would like to get in touch with a first-class manufacturer of balata belting. If quality and price are right, this firm feels certain that a good business can be done in this line.

MILITARY MOTOR TRUCKS GROWING IN FAVOR.

Not the least interesting feature of the mimic warfare that was waged around New York during the early part of August—when the Red Army was seeking to swoop down upon the city and destroy it, and the Blue Army was valiantly defending the homes and hearthstones of 5,000,000 people—was the result of the experiments in the use of motor trucks in army manoeuvres. A large number of them were used by the invading army, and in the general opinion of army men interested in the subject, the motor truck is a vastly more advantageous means of conveying military equipment than the time-honored wagon train drawn by the army mule. Two different styles of trucks were used—one a 3-ton truck and the other a 1½-ton truck. They were much more compact than the mule train, as they occupied only one-third of the space, and consequently were only one-third as much exposed when in motion to the attack of the enemy. Moreover, while the mules had to be supplied with provender at every camp-site, the motor trucks could carry enough gasolene for a ten-days' march. The army mule is evidently doomed.

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

THE B. F. Goodrich Co. is constructing a new office immediately west of the present office building, which will run from the present office building to the east side of the street just opposite the American Hard Rubber Co. The construction will be similar to that of the present office building, although it will be one story higher, and the present office building will be built one story higher, so that the capacity for office room will be at least doubled. The new structure provides for special dining rooms, and also for general dining rooms for office employes. Private and general offices are provided.

H. E. Raymond, general sales manager of the consolidation, has just returned from Europe, and it is believed that the new officials are about to consolidate the office and sales force of the company. Mr. Raymond says that in the reorganization no efficient men will be dropped, as the company's business has increased considerably since consolidation, and that all their office force and more are needed for their present work. The large addition to the Diamond branch of this company is nearing completion.

Mr. H. F. Mason, vice-president of the Goodrich Company, who last winter donated Elizabeth Park to the city of Akron, together with a fund for maintaining the same, has donated to the park $2,000 for a small bridge over the Little Cuyahoga River. Mr. Mason has at heart the welfare of the city of Akron, as evidenced by his many benefactions, and he has offered the city $3,000 a year to employ nurses for medical inspection and care of school children, if the Board of Education will provide physicians to direct them. This amount should employ three or four visiting nurses. All Mr. Mason asks is that qualified physicians shall visit the different schools in the city, and keep in touch with the children, and report those who need assistance and provide for them, if the parents are not able to do so. This should increase the health of the children of Akron and lessen the chance for the spread of contagious diseases. With the hearty coöperation of the teaching force, this would greatly help the health of the school children of Akron. Several members of the Board of Education have spoken heartily in favor of the plan, and if funds can be provided for the payment of physicians, the Board of Education will be pleased to accept Mr. Mason's offer.

The combined plants are very busy and the volume of this year's business shows a large increase over that of last year.

B. G. Work, general manager, who has been in Europe for several weeks, is expected home shortly. Irvin Renner and Walton Fenton, who have been in Colombes, France, helping to oversee the construction and equipment of that plant, have returned home. R. N. Baxter, assistant advertising manager, has resigned his position with this company, and has accepted a position with The System Magazine Co.

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A. Staines Manders, of The International Rubber Exposition, paid a visit to Akron and was courteously received by the Akron manufacturers, and the Chamber of Commerce. Akron industries will be well represented at the Exposition, many applying for space. The Akron Chamber of Commerce have applied for, and been granted, an Akron Day, when Akron's interests will be especially emphasized. Most everybody expects to go so that a good attendance seems assured.

* * *

The Goodyear Tire and Rubber Co., by the installation of 53 fountains, through which is continually pumped a supply of fresh, cool, spring water, believes that it has solved the problem of summer drinking water supply for its workmen. The contract has been let recently to install a circulating system of galvanized iron pipes to all parts of the factory, and at convenient spots throughout the plant, where the fountains will be located. The pipes will be covered with cork 1½ inches thick, to insure a reasonable amount of coolness for the water. If this is not successful a refrigerating plant will be erected. This does away with the old system of water tubs and pails, carried or wheeled from hydrants to the various parts of the factory.

* * *

Papers for the incorporation of The Dutch Rubber Co., of Akron, were filed at Columbus, August 14. The capitalization is $1,250,000. The purpose of the company is extensive, covering the selling, handling, manufacturing and reclaiming all kinds of rubber goods. The company, it is claimed at the present time, will take over the Royal Rubber Co., which will be used as the basis on which to build a large concern and increase the output. This company is being organized in the office of Grand & Schnee, and the officers of the company will be elected later.

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The American Tire and Rubber Co. has recently installed an auto repair department.

* * *

The Goodyear Tire and Rubber Co. constructed a large balloon from their fabric, which was entered in the balloon contest at Kansas City. The balloon behaved admirably in its flight, and although it did not win the contest, the promoters were well pleased with their initial attempt.

It is reported by Lamonte Nollin that this company expects to place a system of stations of the Marconi Wireless Co., which will carry messages around the globe, and that in less than 18 minutes. They expect to complete this system in two years. The construction work is being pushed forward rapidly. The line will consist of 11,500 K.W. duplex stations, which will be located at London, New York, San Francisco, Honolulu, Manila, Singapore, Bangalore, Pretoria, Aden and Cairo. This line will handle only long-distance messages. It may do an international business competing with the Oceanic cable companies, which are now the only means of quick communication between foreign countries. These stations will be "tuned" so they will not interfere with the world's commerce. The wireless company will coöperate with the land companies, where it is possible. The different stations will cost about a half million each, and will be under a running expense of $2,000 per month. Each plant will consist of 12 steel towers, each 300 feet high, arranged in two rows 1,500 feet wide. Each plant will face in the direction it is receiving from, or sending to. Two of these plants will constitute a station. One will be used for sending and the other for receiving. The company has placed over its main office building the wireless apparatus used on the ill-fated balloon "Akron," which has been sending and receiving messages from Detroit and other branches.

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H. S. Firestone, of The Firestone Tire and Rubber Co., is spending his vacation in Northern Michigan.

To secure more room for tire output and office room, the Firestone Company is building two wings to its present plant of the same height and construction as the new plant. The new north wing will be extended 60 x 125 feet, and the new east wing 60 x 200 feet. The Firestone Company is also building a new employment office near Main street.

* * *

The Portage Rubber Co. is erecting an addition to its drying room, 26 x 57 feet, and a two-story brick building 30 x 96 feet; the first floor to be used as a machine room and a shipping room.

* * *

W. H. Bell was transferred from the position of manager of the Pneumatic Department of The Firestone Company to the position of manager of their San Francisco branch.

* * *

S. S. Miller has resigned as superintendent of The Buckeye Tire and Rubber Co. and T. C. Marshall, the assistant superintendent, has been appointed to succeed him.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

BUSINESS is unevenly divided. Orders come in for some lines, while others are in the midst of the midsummer doldrums. Possibly by the time this letter is in print things may have livened up a little, but now, ten days ahead of publication, quietude prevails, and many members of the trade are away on vacations.

There is an exception to the prevailing lassitude in the rubber clothing business, which has not yet caught up to demand—a state of affairs which has been notable for the last two years. A salesman for a leading garment manufacturer, who started out about the fifteenth of August, says that his mill cannot start on any order, not now on their books, before the middle or last of October, so crowded is the factory. Another clothing manufacturer, whose goods are known both here and abroad, tells your correspondent that deliveries lag because of the difficulty in securing the fabrics, practically every mill being months behind in its orders.

There was a run on tan rubber-faced garments a year or two ago, and the mills couldn't make them fast enough to supply the demand. Today you can hardly give them away, in most sections of the country. And the reason is not far to seek. They are as objectionable as the oil-skin slickers. Hot, close, impervious to air, they are uncomfortable to the wearer, and they shed water to such an extent that the wearer's neighbors in the street cars or in the stores, or even the passersby in the streets, are side-swiped, and involuntarily semi-drenched.

But today, the call for waterproof over-garments of fine cloths, rubberized or cravenetted, is ahead of production, and manufacturers are correspondingly happy.

Of course the tire business is good. It's bound to be, as long as people "mote." At the factory of a leading tire, the manager of sales informed THE INDIA RUBBER WORLD representative that every automobile in the country counts as $100 trade to the tire industry. This is by no means an over-estimate, for while the careful user of small tires may spend hardly half or even quarter that sum, the users of large tires on the heavy cars will greatly exceed this average in outlay.

The rubber footwear factories, as is their custom, shut down the first two weeks of August, this generally being considered necessary for inventory, clean-up, changes in construction and repairs, and also because of the demands of their working forces for a vacation. The Converse Rubber Shoe Co. and the Apsley Rubber Co., however, did not shut down. The Apsley company has had no regular shut-down of more than a day or two for several years, making a boast that there are always enough orders ahead to keep the force busy right along through the year.

A matter, which is becoming rather serious, is being considered by the rubber footwear producers. That is the great variety of styles of leather shoes made by the leading manufacturers. These are being multiplied each season, and there are so many shapes of toes, and heights of heels which standard styles of rubbers cannot fit, the special shapes are demanded. The designers are endeavoring to evolve two or three generic near-fit shapes, not always with the greatest success, and as it costs several hundred dollars to put in a set of lasts for a special shape, the problem is one of considerable importance. A leading rubber footwear man states that 80 per cent. of the demand is for the regular standard shapes, about eight or ten in number, and that the other 20 per cent. of the call is divided among at least twenty different shapes now made, and even these are not sufficient to supply all the demands of shoe retailers.

* * *

Some months ago your correspondent mentioned the fact that Walter R. Macdonald, who accompanied Colonel S. P. Colt abroad, would later be sent to the Far East in the interests of the United States Rubber Co. Last month a letter was received from Mr. Macdonald from Singapore. The letter bore the heading, "American Consular Service," and stated that while the regular consul is away on sick leave, "Mack" has been appointed to hold his chair down till he returns. The letter says: "This is a great country; hot, hot as the devil is wicked, but just the place to raise plantation rubber, and the people are improving the opportunity. There isn't the shadow of a doubt in the minds of thinking people that the plantation rubber of the Far East is destined to revolutionize the rubber business of the entire world. It is simply astounding to see the way it is going ahead by leaps and bounds, as the figures come in showing gains each year over the previous one." There you have it, direct from a practical rubber man, right on the spot, and an "acting" consul.

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Captain Francis H. Appleton, Sergeant Francis H. Appleton, Jr., and Cadet Francis H. Appleton, third, and the rest of the Ancient and Honorable Artillery Company of Boston have arrived home from their visit to London, and their confab and hob-nob with King George V., and other notables of Great Britain, and their sight-seeing trip through Europe. The Appletons are well bronzed and are enthusiastic in praise of their trip, but are back again at their desks in their office overlooking the big South Terminal Station, and giving strict attention to the demands of their customers, just as if they had never dined with royalty, and had their pictures taken, elbow-to-elbow, with His Majesty. Some account of this trip is given more fully on another page.

* * *

The Hood Rubber Co. has made an important move during the month. The new concrete Administration Building in front of the factory at East Watertown having been completed, a large proportion of the business of the company will hereafter be transacted there. The purchasing, bookkeeping and correspondence departments, as well as the footwear sample and salesrooms, have been moved to this new building at East Watertown. The company will retain a portion of the present premises on Bedford street in Boston, and Treasurer A. N. Hood will continue to have his office there, but the larger part of the premises will be sub-let for some other kind of business. The present handsome little domed sample room will be retained, for there may be buyers who will consider it a hardship to spend a quarter hour to go to the factory, either by automobile or by way of the speedy Cambridge subway.

And another change is noted in this connection; namely, the taking over of the Shawmut Tire Co. by the Hood Rubber Co. As is well known in the trade, these two companies were practically identical, and all the Shawmut tires are made at the Hood factory. Hereafter the whole business of making, selling, billing and collecting will be assumed by the Hood Rubber Co., all the business in this connection having its headquarters at the Watertown factory and Administration Building.

* * *

Much of the personal news of this month is of the vacation flavor. For instance:

E. I. Aldrich, general selling agent of the Hood Rubber Co., following his usual custom, spent the first half of August at Northfield, where his family remains during the entire summer, while Mr. Aldrich makes week-end visits. He says the summer conferences and meetings have been unusually interesting this year.

R. L. Chipman, of George A. Alden Co., vacationized at North Scituate, returning to business about the 20th, well browned up, but without putting an extra pound of flesh on his bones.

Philip E. Young, of the Acushnet Process Co., was fishing "Way down in Maine" when last heard from.

Robert L. Rice, of the Hood Rubber Co., with his family, is rusticating somewhere in the wilds of Nova Scotia.

F. H. Jones, of the Tyer Rubber Co., is spending his vacation in Maine.

E. B. Kelley, of the Mechanical Fabric Co. (one of the "Kelley Twins" of the Rubber Club of America), has just returned from a trip through Europe.

Thomas F. Kimball, advertising manager of the Hood Rubber Co., is spending a somewhat prolonged vacation in the Adirondacks. Tom has had a strenuous year, and his health has been somewhat undermined, and hence the extended respite from business.

A. D. Thornton, of the Canadian Rubber Co., Montreal, is summering at Kennebunk Beach, Maine, and takes an occasional run up to this city.

R. B. Woodbury, of the Hood Rubber Co. purchasing department, started Wednesday, August 21, on a trip across the Continent. He will sail from a Pacific port for the Far East, Singapore being his destination, where Mr. Woodbury will study the plantation-rubber situation at close range. Several friends were at the station to wish them *bon voyage* on their long journey.

George F. Switzer, traveling agent of the Boston Belting Co., started a week or so ago on a trip to the Pacific Coast, where he will call on the selling agencies of this company at San Francisco, Portland and other points, as well as on the many customers of the concern in the Far West.

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

AS a result of the fire which destroyed its leased storehouse, several months ago, the Revere Rubber Co., a subsidiary of the United States Tire Co., whose plant is located on Valley street, finds itself badly cramped for storage space. Work is being rushed as fast as contractors can rush it on the big four-story brick building which was started several weeks ago.

In the meantime the company is using small wooden buildings and other structures in the vicinity of the works. The plant itself is being rushed to the limit of its capacity, night and day forces being employed all of the time.

The Revere company also has a rather unique feature of its activities, a baseball club made up of employes. The company allows this team to use the firm name and encourages the sport. The team plays those made up of workers from various industries about the city of Providence.

* * *

The American Wringer Co.'s plant at Woonsocket has resumed operations in full, after a shut down for the purpose of installing new equipment and machinery. An engine, two new boilers and a generator have been put into the power plant and other improvements have been made.

* * *

During the early part of August rubber coats began to disappear rapidly from a number of retail stores in Providence. Proprietors began to watch closely. On August 12 Edward Handy, 22, of New York City, was arrested by two detectives, and was fined $25 and costs in the Sixth District Court, for the larceny of two coats from the Hope Rubber Co. Whether he was one of a band operating on rubber goods as a special line of theft, or was working alone, was not found out.

* * *

Business at the plant of the Phillips Insulated Works at Pawtucket is so good that the company is pressed for room and has rushed work on the construction of a new office building. Moving the office force from their present location in the main plant to the new structure, the outside of which is already finished, will give additional space for machinery. The work will be finished within a few months.

* * *

Henry J. Doughty, formerly well known as a rubber manufacturer here, is one of the moving spirits in the Progressive Party here. As a result of the work of the party leaders, former President Roosevelt opened his campaign here with a speech in Infantry Hall.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

CONDITIONS in the rubber trade have never been better, judging by financial standards. Strong call for almost all lines of rubber goods is reported, and manufacturers and dealers in most cases report business up to full capacity.

The tire business continues to overshadow other branches of the rubber business in Chicago, as in most centers, and despite the big spring months, the late summer market remains almost unimpaired, and showing a strong increase over the summer season of a year ago.

Earnings and dividends are the financial gauge of the rubber tire business.

The Republic Rubber Co. has declared its usual quarterly dividend of 2¼ per cent. on the stock, payable to holders of record August 6. The company has also voted to increase its capital stock from $4,000,000 to $10,000,000.

The B. F. Goodrich Co. has declared an initial dividend of 1 per cent. on its common stock, which was made payable August 15 to holders of record August 5.

The Swinehart Tire & Rubber Co. has declared a quarterly dividend of 1½ per cent. on its capital stock. This is a reduction of ½ per cent. for the quarter, the rate being reduced from 8 per cent. to 6 per cent. per annum.

* * *

Few persons have an adequate idea of the growing magnitude of the rubber business in this country. The gross earnings of three companies for the last fiscal year totalled $108,000,000. These three companies' principal product is rubber tires. Four years ago their gross earnings were considerably less than $45,000,000. Rubber Goods, Goodyear and Goodrich (including the Diamond) constitute this notable trio. And to these the United States Rubber Co. and the total figure for gross earnings reaches the astounding figure of more than $157,000,000.

The comparison of earnings and financial differences is interesting:

	Rubber Goods.	Goodyear.	Goodrich.
Gross earnings latest fiscal yr...	$34,587,269	$25,029,162	$48,528,112
Four-year average.....	28,474,286	13,032,159	37,249,152
Net latest fiscal year.....	3,500,997	1,087,632	7,805,312
Four-year average	2,494,449	1,118,990	6,716,904
Capital stock	27,293,100	10,000,000	90,000,000
Per cent. gross (to stock).....	126	250	54
Working capital	8,698,472	7,466,258	19,031,602
Patents, etc	1,570,577	.....	57,000,000

Although some of the above figures are unofficial, the table well represents the financial status of these companies, and shows the Goodyear to have turned over its capital two and one-half times in a year, while the Rubber Goods Co. made a turn of one and one-quarter times, and the Goodrich company one-half.

The Goodyear Tire & Rubber Co. shows gross sales for seven months ending May 31 this year to be $12,477,037, as compared with $13,262,266 for the entire fiscal year ending October 31, 1911. The total net assets of the company, after liberal allowance for depreciation is made, amount to $10,032,644, equivalent to 200.6 per cent. on the entire issue of preferred stock. After January 1, 1915, the company will retire $250,000 preferred stock on or

before October 1 of that year and not less than $250,000 each year ending October 31 thereafter, until the whole issue has been retired.

* * *

The Republic solid staggard electric tire is creating considerable interest in Chicago. The studs on the tread are so arranged that the intervals between the studs in one row are exactly opposite the studs of the adjoining row. According to J. W. Maguire, manager of the Chicago branch, this gives a smooth continuous cushion tread, and the deep depression between the rows gives added elasticity to the tire. Each of the studs is said to take a distinct and individual grip on the pavement, thereby making motoring on wet paving much safer.

* * *

General Manager F. D. Mayer, of the Essenkay Co., has announced that a long-time lease had been acquired on a location in the central manufacturing district of Chicago, giving the concern a very desirable establishment to keep pace with its rush of orders. "Notwithstanding the fact that the equipment forces have been doubled several times on account of the wonderful development of our business," said Mr. Mayer, "we have been obliged to maintain night forces for several weeks and are still behind in our orders. We searched for a modern three-story fireproof building to increase our manufacturing facilities, and found it in the central district, and it is an ideal location."

* * *

The Department of Justice is investigating a report that there is a fire apparatus trust in defiance of the Sherman law, and federal sleuths in Chicago and elsewhere are at work on the matter. United States Attorney James Wilkerson will institute dissolution suits in case the department bares any evidence upholding the contention that a trust exists. Many complaints have been received at Washington, it is said. Charles DeWoody, head of the federal bureau in Chicago, will not confirm the report that his men are investigating the fire apparatus makers and their methods.

* * *

Evanston—where Northwestern University is located—has a "pussyfoot" police force. As a result of recent bold burglaries in that exclusive suburb all officers have been instructed to don brogans with rubber soles. The aristocratic residence community is no longer awakened at night by the heavy thuds of the patrolmen on their beats, nor the midnight prowlers apprised of the policeman's proximity. Only the snoring of the corner "cop" now disturbs the little city, and that is reduced to a minimum by frequent absences from the corner.

SOME TRENTON NOTES.

The Ajax-Grieb Rubber Co. has awarded contracts, calling for the erection of a three-story brick building addition to the concern's plant on Olden avenue, at a cost of $21,000. The building is to be 60 x 200 feet, according to plans prepared by Architect W. W. Slack, of this city. Work of building will be started at once. The new building will be used for a storehouse for tires and general rubber goods.

* * *

C. Harry Baker, stockholder in the Empire Rubber Manufacturing Co., and General C. Edward Murray, treasurer of the company, finished second and third respectively in the clay target shooting match at the recent outing and field day of the employes of the Empire Rubber, Crescent Belting and Packing Co., and Empire Tire Co., at the Inter-State Fair grounds. The outing was one of the biggest events of the kind conducted this year. A big program of athletic events was a feature of the affair. General Murray, who is immensely popular with his employes, presided at the dinner.

THE RUBBER TRADE IN SAN FRANCISCO.

(By a Resident Correspondent.)

THE rubber merchants report, with some signs of satisfaction, that business has improved materially during the past month, and they are now looking forward to a prosperous fall business. Indeed, the long-looked-for era of prosperity seems more certainly near at hand at the present time than at any time during the past three years; and business now is much better than it was at this time last year or the year before. There is more commercial activity in and about San Francisco; and all along the coast industries are enjoying a period of activity which far exceeds the general business of last year. The result is that the merchants engaged in the rubber industry are coming in for a fair amount of the general revival of prosperity, and if all goes well there will be no cessation from now on until the gigantic activities in connection with the Panama-Pacific Exposition cause things to boom in this and the other cities of the San Francisco bay.

* * *

The Goodyear Tire & Rubber Co. has taken up its permanent quarters in its new home at Van Ness avenue and Sutter street, and this is undoubtedly one of the best equipped buildings of its kind in the state. The building is 125 by 176 feet, being two stories in height, with basement. It is finished in "Mission" style, and in a light buff effect. The first floor is devoted to the offices, and these are finished in solid white oak, and all of the color effect is based upon this setting. The general offices are separated from the head offices by a simple counter of oak, and are raised from the elevation of the floor some six or eight inches. The prominent feature of the main floor is the big stairway to the right of the main entrance. It is made of solid stone, finished in an attractive Venetian design, with stairs 15 feet wide. Along the balustrade, and at the landing, the severity of the gray stone is relieved by the green of huge palms and rubber plants.

The second floor is occupied by the coast organization of the Goodyear company, which has the supervision of all of the branches tributary to San Francisco. The finish here is much as the general plan of the main floor. The entire building is equipped with the "Eye Comfort" lighting system, which throws the light upward to the ceiling, where it is so reflected and diffused that no shadows are cast. The rear of the first floor forms the service department, and is complete in every detail, while the same space overhead gives 14,000 square feet of storage room for equipment. The completion of the new home was fittingly celebrated in a big house warming. Decorators took charge of the building, and it had a true holiday appearance, and all of the friends and patrons of the firm were the guests. An excellent vaudeville programme was offered for the occasion, together with moving picture scenes of some recent thrilling automobile races. Dancing occupied the remainder of the evening.

* * *

C. S. Richardson, manager of the Punctureless Tire Co., is a firm believer in the efficacy of prepared tire filler. He has a tire filler which he claims is easily molded and perfectly pliable, with the tough consistency of rubber, yet not porous or sponge-like; nor is it soft and gummy. Neither extreme heat nor cold affects it.

* * *

F. H. Hirsch, with the Pennsylvania Rubber Co., is now traveling through the Northwest, in the interests of the company. This firm is getting out a large number of attractive posters on which they are featuring the Vacuum-Cup Girl, in praise of their vacuum-cup tires. The company reports good business.

* * *

The Goodyear Rubber Co. states that its mechanical business is improving, and going consistently ahead of last year. Condi-

tions are much better in the Northwest. In Oregon the mills are now running nearly at full capacity, and this time last year they were not running a third of their capacity, so that this alone is making considerable difference in the business.

Mat. Burns, with the Goodyear company, is getting out a new tire, at their factory, which is attracting considerable attention, owing to its non-puncturable qualities.

* * *

David Dorward, Jr., formerly with the Union Oil Company, is now with the General Pipe Line Co., in the capacity of constructing engineer. The rubber houses are interested in this company at the present time, owing to the fact that it is preparing to build many miles of pipe.

Another avenue of business for the local rubber houses has been opened by the Spreckels Steamship Co., which has again started three large steamships on the Australia route. This line was laid off for eight years.

* * *

Ed. Garrett, formerly with the Gorham Rubber Co., and now of the Garrett Callaghan Co., has been in the mountains on a shooting trip for six weeks, and intends to stay there until the snow drives him home.

Mr. Cooley, formerly with the Diamond Rubber Co., has accepted a position with the Gorham-Revere Rubber Co., and is now making the Arizona and Nevada territory.

Jos. Francisco, W. Horn and A. Howeth, of the Gorham-Revere Rubber Co., are all up in the mountains on a deer hunt.

Mr. Oliver, who was formerly superintendent of the American Rubber Manufacturing Co., has recently started in business for himself, and has opened an automobile tire repairing establishment in Oakland, California.

Al. Branton, with the Gorham-Revere Rubber Co., has been selected on the Alameda Boat Club crew, which will go to Honolulu, to attend competitive meets.

Mr. Pough, formerly purchasing agent for the Goodyear Rubber Co., has severed connection with the company, and has gone into the general merchandise business.

The Western Belting & Hose Co., 518 Mission street, reports great success with its Lightning Hose Rack. This device is selling not only locally, but is going extensively into the eastern market as well.

DR. BAEKELAND ON OUR PATENT SYSTEM.

"United States Patent System Leaflet No. 3," issued by the American Institute of Chemical Engineers, on "The Abuses of Our Patent System," by Dr. L. H. Baekeland, inventor of "Bakelite," is an excellent exposition of the very serious defects in our present patent system, and a plea for a revision of present methods. Here is a paragraph taken from the leaflet, which gives an idea of the author's opinion of the legal processes in patent cases at the present time:

"Woe, indeed, to the poor inventor who tries to enforce his rights against wealthy infringers, aided by skilful lawyers. His well engraved United States patent parchment may then become his certificate of entrance to the poor house, or to the lunatic asylum. All this tends to discourage invention by independent individuals and paralyzes the stimulation of invention our Constitution intended to promote by the patent law.

"In other words, although the patent law of the United States is about as fine a piece of good progressive legislation as was ever conceived, its enforcement in the United States courts is subject to so many uncertainties, complications, delays, and to such horrible expenses, that the man with limited resources is at an inexpressible disadvantage.

"If any one asks my advice, whether he should take out a patent or not, my invariable answer is: 'Can you find the money to defend your right in court? If not, do not waste any time or money on a patent.'"

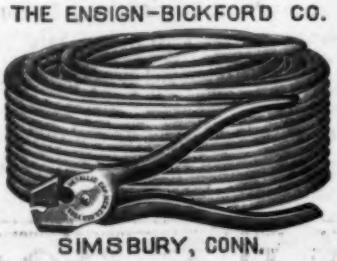
A POPULAR MAGAZINE'S VIEW OF A RUBBER INVESTMENT.

Quite a number of the popular magazines have introduced a financial department, where they give inquiring readers information, on request, regarding investments. In a recent number of "Lippincott's" the financial expert answers the question: "What is your opinion of the preferred stock of The B. F. Goodrich Co?" as follows. As it is a concise presentation of the case we reprint his reply:

"The B. F. Goodrich Co. was organized under the laws of New York on May 2, 1912, and has acquired nearly all of the property and assets of the Ohio corporation of the same name, and of the Diamond Rubber Co., an Ohio corporation. The balance sheet and statement of earnings vouched for by Messrs. Deloitte, Plender, Griffiths & Co., chartered accountants, shows real estate buildings, plant, machinery, good will and patents worth $72,325,188.42, and current assets of $26,457,507.57. The total assets of the company are $100,877,604.46. The current liabilities of the company representing the amount of debt outstanding against these assets are $7,425,704.94. The liabilities of the company are nearly all capital stock of which there is $30,000,000 of preferred and $60,000,000 of common outstanding. Including certain miscellaneous reserves in the liabilities the company has $62,200,000 of assets in excess of its preferred stock. The gross sales of the companies acquired by the Goodrich company have increased from $22,580,107.63 in 1908, to $48,528,112.01 in 1911, and during the same period the profits have increased from $4,615,098.42 to $7,805,312.48. The preferred stock calls for 7 per cent. cumulative dividends and on the basis of the profits of 1911 the company has earned nearly four times its preferred dividend. The charter and by-laws of the company provide that no mortgage can be placed upon the company's property, nor can the amount of the preferred stock be increased without the consent of three-fourths in interest of each class of the outstanding stock of the company, both preferred and common, and provides, also, that beginning with July 1, 1914, and each and every year thereafter (until all of the preferred stock shall have been redeemed) the company shall annually acquire by redemption or purchase at not to exceed $125 per share, plus accrued dividends, at least 3 per cent. of the largest amount in par value of said preferred stock that shall at any time be issued and outstanding. Of its class this preferred stock is unexcelled. In assets, profits and trade position the company is exceptionally strong."

SAFETY FUSE.

It cannot be said that safety fuse is especially new. As a matter of fact, it was first invented by an Englishman, Bickford by name, 80 years ago, and patented by him at that time, but since that distant day a great many improvements have been introduced. The manufacture of safety fuse was established in the United States in 1836, in Granby, Connecticut, and soon afterwards moved to Simsbury, Connecticut, where it is still carried on by The Ensign-Bickford Company, successors of the original inventor. They make a variety of safety fuses to meet different conditions, their fuse for use under damp conditions, and particularly where the fuse is to go under water, being rendered waterproof by the use of a gutta-percha covering. The gutta-percha is also, in some of these varieties, rendered still further waterproof by an application of tape so varnished as to be impervious to air and moisture. This keeps the gutta-percha from oxidizing and considerably increases its life and usefulness.



The India Rubber Trade in Great Britain.

By Our Regular Correspondent.

IN June the daily and illustrated press had a good deal to say on the subject of synthetic rubber; in July equal prominence was accorded to another and more regrettable phase of the rubber industry, viz., the Putumayo atrocities which, as recorded in the government Blue Book, have stirred the public mind to a degree comparable with what obtained in the case of the Bulgarian atrocities of thirty odd years ago. The main facts are, of course, well known and need no repetition, but I may be allowed a word or two of comment on the situation. Although the names of the English members of the board of the Peruvian Amazon Co. (now in voluntary liquidation) have not yet been mentioned in Parliament there is, of course, no secret about them, and several papers have already given them prominence. As far as the responsibility of Mr. Gubbins, Mr. Read and Sir John Lister-Kaye is concerned, anyone who knows anything about the average limited company of London will readily believe that these gentlemen knew very little about the conduct of the business, and that they were entirely in the hands of their Spanish confreres. As, however, their degree of responsibility may be a matter for judicial enquiry, I will say no more, except to contradict the absurd statement made in the German press that they are naturalized Peruvians.

THE PERUVIAN AMAZON CO.

In conversation with an English merchant, who acts as vice-consul for Peru in one of our large cities, I learned that he had had rather a troublous time lately. He put the case in the best way he could for his much abused country, and I give one or two of the points he made. It was very unfair, he said, to level abuse at Peruvian rubber merchants generally, as the great bulk of them carried on their business in a reputable manner; though he admitted that the methods of barter and prevalent custom of getting the collectors into debt with the merchants, were not such as would commend themselves to British trade unionists. With regard to the alleged inactivity of the government in punishing offenders, he said the British were apt to overlook the immense difficulties contingent on taking punitive measures against criminals in a densely wooded country. The weekly "Spectator," however, says that where criminals can go police can follow, and goes on in a strongly-worded article to suggest the bombardment of Peruvian ports, jointly by England and America, as the only way to bring Peru to a sense of her responsibilities.

In a good many quarters it was supposed that the Continental Co., of Hanover, was practically the only German maker of this material, and the brief reference in the INDIA RUBBER WORLD of July to the important position of Metzeler & Co., of Munich, in this business, is of interest. Of course the manufacture is bound to become more widespread, but at present there are only two firms in Great Britain which have taken it up seriously, viz., the North British Rubber Co. and the Dunlop Rubber Co. The pioneers in a new branch have, of course, more difficulties to contend with than those who come in at a later stage, and those who are now considering the matter have at their disposal a good deal of technical information of quite recent publication in France and Germany. I understand that there are now several rubber firms in America making these fabrics, though the initiative was given little more than a year ago by the Goodyear Tire & Rubber Co. at Akron, the huge gas-bag for the Seiberling-Vaniman balloon made by them being illustrated, I may perhaps mention, in the INDIA RUBBER WORLD for September, 1911. With regard to the important point as to the life to be expected of such fabric when in use, experiments on very similar lines are being carried on at the present time, both at Charlottenburg (Berlin) and at the National Physical Laboratory, London. Whether America is doing anything in this way, I don't know. From reports to date it is clear that but little of a decisive nature has as yet been arrived at—all the more reason why new firms should be chary of going into the business.

BALLOON AND AEROPLANE FABRICS.

There will be general agreement with Dr. Frank's (remarks quoted in THE INDIA RUBBER WORLD, July, 1912, p. 491) as to the importance of preventing acidity derived from the sulphur, and of course the contact of copper should be avoided. Is it really a fact that copper has been found as a constituent of plantation rubber? As up to the present, at any rate, it has not been customary in England to use metallic oxides or other acid neutralizing bodies in balloon fabric proofing, it is obvious that the selection of the particular brand of sulphur is a matter of importance. I read somewhere or other recently that firms which had laid themselves out for balloon cloth manufacture were seeking to sell excess production for other purposes. A purpose which suggests itself as appropriate is for hospital bandages, one variety at least of which is of very similar nature. This is cotton cloth proofed on both sides with pure Pará rubber and sulphur, and vulcanized. This is usually sold with a two-year guarantee; the conditions of use being pretty well known, and of course much less liable to variation than in the case of balloon use, leaving out of account altogether any possible deleterious effects due to diffusion of gases. Rubber texture of this sort is also put to other than medical uses, though not on a very large scale, and as the demand is easily met at the present time, I don't see that there is any important market for the excess balloon production.

A recent event of some importance, and of considerable interest, is the flotation of this old established rubber works as a public limited company; not a private limited company such as exists in the case of a good many of our rubber works. The capital of the new company is £120,000, and though the names of two of the three directors are probably unknown in rubber trade circles, the fact that the third director is Mr. J. Hancock Nunn, the proprietor and moving spirit of the old concern, argues well for the future. The prospectus naturally draws attention to the fact that this was the pioneer rubber factory of the world, though the present premises in Goswell Road, London, E. C., are of considerably greater extent than the modest building which served as the commencement of business in 1821. Mr. Nunn is a grandson of the well-known Thomas Hancock, and the provision of further capital is primarily concerned with developing the scope of the manufacture. The profits of recent years have shown a steady rise up to about £11,000, and I may say that the press notices of the shares as an investment have been mostly favorable; an exception being the "Economist," which considers the cash payment of £55,000 to the vendor rather high, and £4,000 for new working capital too low.

JAMES LYNE HANCOCK.

Recent changes in the management of this company have been a topic of interest in the trade. For considerations of health, Mr. Baker returns to London, and is succeeded in the works management by Mr. Johnstone, his former lieutenant. Mr. W. A. Williams, from being assistant general works superintendent, becomes general works superintendent. Mr. Williams, who is a fellow of the Chemical Society, was formerly head of the laboratory, and it is undoubtedly an advantage for the works' superintendent to be in a position to direct and understand laboratory procedure.

THE NORTH BRITISH RUBBER CO., LIMITED.

In an interesting paragraph on emery in Pearson's "Crude Rubber and Compounding Ingredients," it is stated that in rubber mills the substance is chiefly used in the manufacture of what are known as vulcanite emery wheels. With regard to the manufacture of these wheels in England, although I cannot say for certain, yet I imagine that it is not carried on in any of the rubber mills. As far as I am acquainted with the business, it is carried on as a special branch of certain engineering works, more particularly in Lancashire and Yorkshire. These works have a complete equipment of washers, vulcanizers, etc., to make the finished wheels from the crude rubber. With one exception sulphur is the only chemical used, though I may say that linseed oil is an important component of the mixing, the exact details of which are considered a trade secret by the several manufacturers, and this in spite of the oft repeated statement that there are no trade secrets left in the manufacture of rubber today. Although the manufacture is by no means an extensive one, there is nothing like a monopoly; and there are sufficient people engaged in it to cause considerable competition for the business to be done; and one hears complaints that the resulting profits are not what they were, or ought to be.

EMERY WHEELS.

I suppose I ought to take as a delicate compliment the fact that I am continually receiving letters from various parts of the world, thanking me in advance for some free information desired. All the same I may say that I have no desire to enter into competition with the editors of technical journals, who are supposed to stand alone as purveyors of free information. It is remarkable with what cheerfulness readers' demands are met by editors, even when the latter have a profound conviction that the enquirer has read the journals in a free library, and has not expended a coin of his own. I am not going to enlarge upon the various enquiries of this sort that I have had, though I may perhaps say that a recent one from America calls for a suitable process whereby the old rubber in a laboratory can be re-made on the spot into articles such as stoppers. I believe that in America the success which has attended the reclaiming of waste rubber is largely due to the extensive scale on which the business is conducted, and I imagine that the magnates of the industry would not approve of a plant being erected for an output of a few pounds.

SEEKERS FOR INFORMATION.

Another chapter in the melancholy history of this wild rubber concern is now finished, and I note that it has been decided to reduce the original capital from £270,000 to £27,000, to give up the attempted collection of wild rubber, and to continue for the future as a plantation proposition only. Most of the influential men, whose names figured in the prospectus six or seven years ago, have retired, and it goes without saying that the results of the enterprise to date have been a source of great concern to Sir Harry Johnston, who was so prominently concerned with the venture. The inherent difficulties in the way of collecting the wild rubber at a profit seems to have been treated much too lightly by those whose experience in West Africa inspired investors with confidence. Apart from this, however, the flotation of the corporation by the agency of the Consolidated Rubber Syndicate, at a huge profit to the latter for doing practically nothing, is a matter which in the opinion of many people ought to be investigated in the courts. Whether anything will be done in the matter is doubtful. In this case, as in that of the United Malaysian Rubber Co., where shareholders are clamoring for a Board of Trade enquiry into the details of the promotion, it seems that there are no existing powers to enforce, unless the company is in compulsory liquidation. What makes the shareholders in these two, and also in other companies I have not mentioned, so angry is the fact that they went in entirely on the faith of the prominent names on the directorate. Mere titles on a directorate have been used as a lure for the public, and the astute company promoter therefore likes to get the assistance of people well known either as politicians, administrators or business men. In the above cases the promoters were successful, but with unsatisfactory results to the investors.

THE LIBERIAN RUBBER CORPORATION.

DERMATINE COMPANY, LIMITED, LONDON.

This company's report for the year ending June 30 shows the gratifying result that, after providing for the preference dividend, fifteen per cent. will be paid upon the common stock. The reserve account stands at £5,000, invested in municipal securities.

THE RUBBER TIRE TRADE IN GERMANY.

Our Consul General in Berlin in a recent report sent to the State Department, which gives a general review of German trade and industries, doesn't paint the rubber tire industry in Germany in very glowing colors. Here is a paragraph on the subject taken from his report:

"In the rubber industry business was brisk throughout the year, and there was a demand from both the home and foreign markets. Competition, however, reduced the prices of many articles to such an extent that there was but little profit either to the manufacturer or to the dealer. Manufacturers of rubber tires for motor vehicles suffered greatly from this cause. To meet the radical cut of one company it is estimated that it cost the German tire manufacturers millions of dollars. The unfavorable situation was still further accentuated by the great fall in the prices of crude rubber, which decreased the value of the stocks of raw material on hand in nearly all of the factories. Most of the companies were obliged to reduce their dividends as compared with 1910. The outlook for the present year cannot be considered bright, not on account of lack of orders, but owing to the tendency of the manufacturers and dealers to cut prices."

THE PROPOSED TARIFF REFORM IN HOLLAND.

The proposals now under consideration by the Dutch government for changes in duties include the following alterations:

INDIA RUBBER, GUTTA PERCHA:	Present Rates.	Proposed Rates.
Sheets, plates; and all unmanufactured india rubber and gutta percha.....	Free	Free
Rods, pipes, cords, tubes, hose-pipe or tape, not specially mentioned	5%	3%
Tires for bicycles and carriages.....	5%	10%
Manufactures not separately mentioned	5%	12%

Replete with information for rubber manufacturers: Mr. Pearson's "Crude Rubber and Compounding Ingredients."

The Rubber Industry of Japan.

By Our Regular Correspondent.

THE OSAKA RUBBER INDUSTRY.

IN addition to the Kakuichi Rubber Co., described in the last letter, Osaka contains a number of other rubber manufacturers; some of them combining a wholesale department with their manufacturing activity.

Prominent among these are the Hirano Rubber Works, established in May, 1894; the date of its foundation rendering this the oldest rubber concern in Osaka. It makes a varied line of rubber manufactures, and covers an area of one acre, of which the buildings occupy one-half. Its power plant includes one 25 horse-power boiler and one 30 horse-power engine. The managing owner is M. Hirano, formerly a rubber trader; in which capacity he became acquainted through an Indian friend, with an Englishman, a rubber manufacturer, from whom he learned how to manufacture rubber goods. The initial process then used by Japanese rubber manufacturing companies, was that of drying rubber by heated sand.

Next in seniority comes the Sumitomo Electric Wire & Cable Works, which dates its manufacture of copper electric wire from the year 1897, when its predecessor, the Sumitomo Copper Works, bought out the Nippon Copper Manufacturing Co., Limited, and started the manufacture of copper wire. Owing to the development of the Japanese electrical industry, the Sumitomo Copper Works in 1907 engaged an English expert, for the production of the various preparations intended for the manufacture of insulated wire cables and paper cables. In the following year the two concerns were separated; their titles being the Sumitomo Copper Works for the previous concern, and the Sumitomo Electric Wire and Cable Works for its offshoot. They still occupy the same location, but it is contemplated in a few years to rebuild elsewhere the plant of the younger concern. The owners are members of one of the richest families in Japan. The testing apparatus of the wire works is remarkably complete; including the various instruments required for chemical, mechanical and electrical tests. The production now includes:

1. Stranding wires; weatherproof wires; cotton and silk braid.
2. Copper, brass, aluminum, nickel and bronze wires.
3. Paraffin wires; cotton or silk cords.
4. Rubber covered wires and cables.
5. Lead-covered paper cables for telephones, electric light and power; rubber insulated lead-covered wires; paper or rubber insulated lead-covered cables.

The Oishi Rubber Works were established in November, 1901, and employ 16 hands; having one 15 horse-power boiler, and one 10 horse-power engine. A large part of the trade consists in the distribution of the products of the Kakuichi Rubber Co. of the same city, already referred to; so that an extensive variety of rubber goods is handled by this concern.

In 1905, the limited partnership was formed, which operates the Teikoku Rubber Works. This firm manufactures rubber balls (of which it produced about 5,000 dozen in 1911); as well as sockets for gas. Its capital is $10,000; its hands numbering 60.

Among the installations of 1907 was that of the Kansai Rubber Works, manufacturing water bottles. It employs 20 hands, and has a 5 horse-power engine.

In the same year was started the Kaniwa Rubber Factory (Oshima Shoten), making ebonite products, rubber tubes, etc. Its engine and boiler are each 8 horse-power, and the staff numbers 25.

The Nippon Electric Wire Manufacturing Co. was organized in 1907, as a limited partnership; its principal manufactures being insulated wires and cords. Its capital is $50,000, of which the sum of $35,000 has been paid in. Last year it paid a dividend of 10 per cent.; having a reserve fund of $2,300.

Another Osaka concern is the Arenkenn Rubber Works, established in November, 1910. It makes jinrikisha tires, tubings and hose; as well as "tabi" soles. The area of the plant is 1¼ acre, of which about one-half is occupied by buildings. It employs 16 hands, and has a 25 horse-power engine.

The Lion Rubber Co., established April, 1911, manufactures water bottles and air pillows; employing 15 male and 20 female hands. Its boiler and engine are each of 8 horse-power.

Another new installation of last year was the Asahi Rubber Co., making water bottles and erasers. It employs 20 hands, having one 15 horse-power boiler and one 12 horse-power engine.

The Oku Co., established in October, 1911, manufactures electric insulation supplies and air pillows. It has a 25 horse-power engine, and employs 10 hands.

In January, 1912, the Tiger Rubber Co. was established for the manufacture of medical goods, insulating tape and ebonite. Its staff includes 15 hands, and its mechanical equipment one 8 horse-power engine.

Finally, the Osaka Rubber Works, likewise established in January, 1912, for the manufacture of a general line of rubber goods, seems to contemplate an extensive production; its engine being 40 horse-power.

JAPANESE IMPORTS OF BICYCLE TIRES.

It is estimated that there are in Japan about 500,000 bicycles. About 30 per cent. of the tires for these is supplied by the Dunlop Rubber Co. (Far East), Limited, which was established at Kobe in 1908. British, American, German and other foreign rubber companies supply about 40 per cent, Japanese companies furnishing the remaining 30 per cent.

The actual difference between the old and new Japanese duties on bicycle tires is as follows:

New duty per 100 lbs.....	yen 114.00 =	$56.44
Old duty per 100 lbs.....	95.60 =	47.33
Difference per 100 lbs.....	yen 18.40 =	$9.11

A comparison of the Japanese bicycle tire imports during the seven months of 1911, when the old tariff was in operation, and those of the first five months under the new tariff, shows the effect of the last-named measure:

JAPANESE BICYCLE TIRE IMPORTS FOR 1911.

	January to July Old Tariff.	August to December New Tariff.	Total.
From Great Britain.....	$347,629	$170,443	$518,072
United States	7,025	8,305	15,330
Germany	3,189	377	3,566
France	1,049	26	1,075
Italy	.....	219	219
	$358,892	$179,370	$538,262
Average per month.....	$51,270	$35,874	.....

The average reduction was thus to the extent of one-third; Great Britain, as the predominating source of supply, being, of course, the chief sufferer.

Of the imports from Great Britain, of $347,629 for the first seven months of 1911, the amount of $124,242, or approximately one-third, belonged to the month of July, it being thus shown that the large imports of that month were in view of anticipated requirements, provision for which was left till the last moment.

In addition to being imported into Japan as "bicycle tires," some of them are imported under the heading of "bicycles and parts thereof." In this connection the following figures of bicycle imports for 1911 will prove of interest:

JAPANESE BICYCLE IMPORTS, 1911.

From	Number.	Value.
Great Britain	19,704	$342,686
United States	564	15,937
Belgium	30	632
Germany	18	1,283
Japanese China	13	403
France	2	217
Switzerland	2	82
Canada	1	15
Other countries	6	218
Total	20,340	$361,473

YAMATO RUBBER WORKS.

This company was established in 1908 at Kameida, Tokyo, by Ikumatso Ouchi. Its motive power is furnished by one 80 h. p. boiler and one 18 h. p. engine, the products including mechanical goods (with the exception of hose) and jinrikisha tires.

DEVELOPMENT OF JAPANESE ELECTRICAL INDUSTRIES.

The report of the British Commercial Attaché at Yokohama on the trade of Japan in 1911, confirms the statements which have appeared as to the progress of the rubber industry in Japan. Owing to the connections which exist between the owners of copper mines and the insulated wire mills, either as owners or furnishers of wire, the latter have more capital than is usually the case with such concerns. The copper manufacturing firms assist the mills by giving them credit on the wire supplied to them. Manufacturers of insulated wire are thus in a much more favorable position than those in the mechanical branch of the industry.

One of the principal difficulties affecting the mills is the lack of experienced technical men. The manufacture of insulated wire has already served to check the imports of European rubber-covered wire.

AN ENGLISH VIEW OF THE CRUDE RUBBER SITUATION.

DEALING, as it does, with the latest available figures, the report of the Rubber Plantation Investment Trust shows the present statistical position of the crude rubber market, as it appears to English eyes. According to the report in question, as summarized, the following is a fair estimate of the rubber consumption for 1903:

America	47,500 tons.
Great Britain	15,000 "
Germany	15,000 "
France	10,000 "
Russia	7,000 "
Belgium	1,500 "
Various countries	7,000 "
Total	103,000 tons.

Against this estimated consumption, the production for 1913 is estimated at about 91,000 tons.

The detailed figures composing this estimate are:

South America	39,000 tons.
Plantation (at a very high rate)	28,500 "
Africa	15,000 "
Central America	5,000 "
Assam, Rangoon, Borneo, etc.	2,500 "
All other sources	1,000 "
	91,000 tons.

ENGLISH CONSUMPTION.

In establishing the figures of a nation's net consumption of rubber, the returns of imports must be diminished by the amount of exports. The figures quoted for England in this connection are instructive:

UNITED KINGDOM RUBBER RETURNS.

	Imports. Tons.	Exports. Tons.	Net Consumption. Tons.
1910	25,124	13,052	12,072
1911	23,369	13,385	9,984
1912	25,718	18,542	7,176
1913 (Estimated)			15,000

These figures indicate that English manufacturers are now bare of stocks, having absorbed within the last few years a constantly decreasing proportion of the imports. To make up for this growing deficiency, an augmentation of consumption for 1913 has been estimated.

AMERICAN CONSUMPTION.

The most salient point in this estimate is the quantity of about 47,500 tons prospectively allotted to the United States, representing about 45 per cent. of the world's entire production. That this is not an extravagant estimate is shown by the figures of the recorded United States imports of rubber for the last three fiscal years ending June 30:

UNITED STATES RUBBER IMPORTS.

	Pounds.	Tons.
Fiscal year, 1909-1910	101,044,681	50,500
Fiscal year, 1910-1911	72,046,260	36,020
Fiscal year, 1911-1912	110,210,173	55,105

As the above figures are for the fiscal years ending June 30, the figures for the calendar years immediately preceding are instructive for purposes of comparison:

UNITED STATES RUBBER IMPORTS.

	Pounds.	Tons.
Calendar year, 1909	93,967,414	46,984
Calendar year, 1910	90,139,232	45,570
Calendar year, 1911	82,921,465	41,460

American imports for the fiscal year 1911-1912 are thus on an unprecedented scale of importance, while according to the estimate as quoted above, the American consumption for 1913 is placed at about 47,500 tons, against a recorded import of about 55,000 tons for the fiscal year, 1911-1912, ending June 30 last. There is thus apparently no reason why this country should not continue to take one-half of the world's production of rubber.

RUBBER TRADE OUTLOOK.

Commenting upon the recent estimate of 103,000 tons for next year's rubber consumption of the world, as compared with an estimated production of 91,000 tons, and the present shortage in visible supply, a writer in the "City Press" of London gives the following advice to English manufacturers: "I am confident that the figures of production and consumption justify a much higher price for rubber than is at present ruling, and I think that if the English and continental manufacturers are not careful, the Americans are going to get them short. They have had them short, as a rule, before, and they will have them so again."

Some Rubber Planting Notes.

BAH LIAS TOBACCO & RUBBER ESTATES, LIMITED; EAST COAST OF SUMATRA.

THE first meeting of this company, formed in 1911, took place on July 23 at the London offices, 49 Eastcheap. It had been formed to take over concessions of the total area of about 40,000 acres, of which at the end of January 1,540 acres in the Bah Lias section had been planted in rubber; the 207,000 trees having been planted 18 x 18. It is contemplated to plant a further 700 acres this year; the preparation for which has been making rapid progress. This block is situated in the middle of the estate and when planted will render the whole area one solid block of rubber. As to the Soengei Brohol portion, it was not contemplated to make further clearings, but intended that the 557 acres planted between 1900 and 1911 should be got clean and in excellent condition. It was further proposed to plant 300 acres under Pará rubber in the Soengei Brohol section during the current year.

BAMBRAKELLY (CEYLON) TEA AND RUBBER COMPANY.

The progress being made by this company is shown by the fact that the yield of rubber, which for the nine months ending December, 1911, was 32,011 pounds, is estimated by the annual report as probably amounting for 1912 to 75,000 pounds. This anticipated increase of yield is accompanied by an estimated cost of 1*s.* 5½*d.* per pound, as compared with 1*s.* 9½*d.* actual cost for 1911. More rubber at lower cost will doubtless favorably affect the results of the current year, which have already shown increased profits for 1911.

MALAYAN OPINION OF AMERICAN RUBBER PROSPECTS.

The following opinion of a Malayan expert is quoted by the "Malay Mail."

"The forthcoming New York exhibition is of paramount importance to Malaya and the rubber industry. Just now the Mexican supply is giving out and what America wants to know is whether Malaya can supply what she is buying at present from Brazil. We say yes, and provided America is suited with our rubber, another boom is I can almost say, probable. America will not buy the wild article from Brazil any longer when Malaya's exhibits have been seen and tested. Brazil's supply will not expand—it cannot—but the producing capacity of this country is unknown, it is so vast."

AMERICAN AUTOMOBILES IN MALAYA.

The American automobile appears to be making its way very rapidly in the Malay Peninsula. The American Vice-Consul General at Singapore states in a recent report that "a local firm which was until recently the most formidable competitor of American motor cars in this district, and which had the best facilities and connections for extending the trade of foreign makes of cars, has just obtained the services of an American motor-car expert to take charge of its garage. This firm now holds agencies for three American cars and has practically abandoned its British and Continental business. From this and similar instances, it is evident that the market for American goods is here and obtainable, provided it is sought for in the proper manner."

LIVELY TIMES IN MEXICO.

Rubber planting in Mexico has been attended with a good many unusual, not to say, exciting episodes during the last year. It is a decidedly lively occupation as will be seen from the following extract taken from a letter recently received in this office from a well-known rubber planter in that republic:

"Our *Hevea* at this place is very fine, and I am now setting out from last year's nursery some 30,000 trees. I have some trees here 19 months from seed in position—that is to say, not transplanted; hence, not checked—that have reached in the time indicated a height of 18 feet, with trunks 8 inches in circumference at one foot above ground—6 inches in circumference at two feet above ground and 5½ inches at 3 feet above ground. This is not beaten a great deal anywhere. In due season I shall send you some photos, if you would like to have them. Brigandage is pretty bad hereabouts. Day before yesterday a small band dropped in just at dusk. We numbered four rifles, and we gave them a warm reception. Net result—one dead bandit, one wounded. No casualties on our side. We captured two horses, one rifle and one pistol—about 50 shots exchanged. And now today after hot wires and mails for three months, there arrived the long-promised protection—a detachment of mounted *rurales;* and another detachment *en route* from Ardoba to clean out this infested district."

SANTA MARIA DEVELOPMENT CO.

The Santa Maria Development Co., of St. Paul, Minnesota, whose directors include a number of well-known business men of that city, is engaged in developing a rubber plantation in Mexico. In the summer of 1910 the company purchased what is known as the Santa Clara tract, containing over 6,000 acres in the Soconusco district. In addition it bought a nearby plantation consisting of 400 acres—half of which had been planted to rubber trees, having 60,000 trees ranging from three to ten years of age, over 30,000 of the trees being nine and ten years old.

During the season of 1911 the company cleared 650 acres of the Santa Clara tract, planted it to rubber, built over fifty houses for laborers and raised 500 acres of corn. The company will send illustrated literature to anyone who is interested in the project. The home office is in the Oppenheim Block, St. Paul, Minnesota.

A GOOD WAY TO CARRY LATEX.

The time honored way of carrying latex from the trees on the plantation to the coagulating house, has been to use a five-gallon kerosene can. Sometimes it has been carried in cans upon the head. Here is a "Latex Barrow," which is a wonderful time saver,

A LATEX BARROW.

as it holds 30 gallons, and in larger sizes 40 gallons, and saves a great many unnecessary trips. The mechanism at the side is for convenience in emptying the barrow. [Robert Warner & Co., London, England.]

THE BOLIVIAN RUBBER INDUSTRY.

IN a recently published monograph,* the Bolivian rubber industry has been officially dealt with from various points of view. Starting with a geographical description of the country, its natural wealth and products are next touched upon; while with a view of completeness, there follows a botanical classification of the chief rubber producing plants, prominence being given to *Hevea.*

While the treatment of this subject is to a great extent general in character, the special features of Bolivian rubber culture are likewise dealt with, the text being supplemented by illustrations of the leaves of *Castilloa Ulei Warb, Castilloa Australis Hemsl, Manihot Glaziovii Muell Arg, Sapium Verum Hemsl, Micrandra Siphonoides Muell Arg,* and other varieties more or less identified with Bolivia.

HISTORY OF RUBBER IN BOLIVIA.

Much interest attaches to the historical account of rubber production in Bolivia. In 1846, the national government instructed the Prefect of the Department of Beni to explore the unknown portions of the rivers Beni, Mamoré and Madeira. From 1846 to 1880 these regions were infested by cannibals, whose internecine conflicts led, however, to practical depopulation. When Dr. Edwin Heath, in 1880, undertook the exploration of the Beni region, he scarcely found any traces of these tribes.

At that time Bolivian proprietors had been attracted by the profits attending the culture of quinine, which reached the European markets through the port of Pará. Asiatic competition, however, materially affected the demand for South American quinine, notwithstanding the excellent qualities of the latter.

In 1863, several Bolivian proprietors conceived the idea of growing rubber, thus furnishing occupation for their hands. Their methods were rudimentary in character, operations being carried on in various islands, from which they extended to the Madeira and other tributaries of the Amazon. The next year (1864) the first serious rubber enterprise was established in Bolivia, at the mouth of the river Yata, a tributary of the Mamoré. The crop of that year represented about 1900 pounds and was the first Bolivian rubber produced. About the same time other enterprises started, but do not seem to have been seriously developed, an opinion gaining ground that it was impossible for Bolivian rubber to compete with the Brazilian product. The former, it was stated, had been found much inferior to the latter in the quantity and quality of latex.

New efforts were made in 1874 and 1875 to promote Bolivian rubber culture, which were attended with success. By 1878 the production had increased to 50 tons. About 1880 a veritable rubber fever was developed, largely owing to the initiative of Dr. Heath (the American explorer), already referred to. The year 1882 witnessed a notable development in the Beni territory which progressed from that time.

STATISTICS OF PRODUCTION AND EXPORTATION.

The history of Bolivian rubber culture is best told by the statistical return since 1890, which forms one of the most interesting features of the monograph:

	Tons.		Tons.		Tons.
1890	294	1897	1,674	1904	1,569
1891	345	1898	3,155	1905	1,677
1892	363	1899	2,140	1906	1,929
1893	394	1900	3,496	1907	1,830
1894	632	1901	3,465	1908	2,607
1895	820	1902	1,903	1909	3,052
1896	1,140	1903	1,321	1910	3,117

Although subjected to various fluctuations, the production of rubber in Bolivia has thus increased ten-fold within 20 years.

*MONOGRAFIA DE LA INDUSTRIA DE LA GOMA ELASTICA EN Bolivia. (Monograph on the Bolivian Rubber Industry.) By Manuel V. Ballivian and Gasto F. Pinilla, La Paz, 1912. [354 pages; 8vo.; with appendix of 84 pages.]

While Bolivian rubber reaches the world's markets to a large extent through other countries, Bolivia has a custom house system which shows the ultimate destination of rubber leaving the country. This information is shown for the last five years reported upon, in four different forms:

SOURCES OF PRODUCTION.

	Tons.
Department of Beni	6,895
National Colonial Territory	2,955
Department of La Paz	1,624
Department of Santa Cruz	1,063
Total (5 years) (tons)	12,537

FIVE YEARS' SHIPMENTS.

	Tons.
1906	1,930
1907	1,830
1908	2,607
1909	3,052
1910	3,118
Total (5 years) (tons)	12,537

DESTINATIONS.

	Tons.
England	7,053
Germany	2,351
France	1,959
Belgium	782
United States	392
Total (5 years) (tons)	12,537

EXPORTING CUSTOM HOUSES.

	Tons.
Villa Bella	6,319
Cobaja	2,386
Porto Suarez	828
Abuna	569
Oruro	527
Taraja	121
La Paz and others	1,787
Total (5 years) (tons)	12,537

EXPORT DUTY.

The export duty at present in force in Bolivia, according to the law of August 23, 1900, is 12 per cent. *ad valorem.*

The monograph is replete with statistical information, giving full lists of Bolivian plantations, with names of owners.

Owing to the proximity of Brazil, various points dealt with affect the interests of both countries, but the above extracts of references purely Bolivian in character reflect the scope of this comprehensive and carefully edited volume, as far as Bolivia is concerned.

TO PRODUCE CHICLE IN VENEZUELA.

The Minister of Agriculture in Venezuela has granted to José Patrocinio Cuéllar, of Caracas, an exclusive 10-year privilege to establish plants for extracting chicle in that country. He is compelled under this concession to do all he possibly can to extend the planting and cultivating of the chicle-gum producing trees, and if he ceases to operate his concession actively, it lapses at the end of a year of such cessation to the government. This is a new industry for Venezuela.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

THE BALATA COMMITTEE'S REPORT—OUTLINE OF THE RECOMMENDATIONS.

THE report of the Balata Committee, which has now been published, is a document of considerable length and of great importance. Its recommendations are numerous, and their adoption would probably prove helpful to the industry; but considerable difference of opinion has been expressed already, and any ordinance that might be framed upon the report is certain to be met with considerable opposition and criticism. The recommendations may be summarized briefly as follows:

That registration be transferred from the Institute of Mines and Forests to the Department of Lands and Mines; that the Institute of Mines and Forests shall continue the work of contracting, and that legislation shall be passed making the execution and recording of contracts before an officer of the institute compulsory for validity; that the registration fee shall be two shillings, to be paid in equal proportions by the employer and the laborer; and that the contracting fee shall also be two shillings, to be paid in equal proportions by employer and laborer; the total effect of such change being an increase of sixpence, one shilling less for the laborer, and one shilling and sixpence more for the employer; that the Institute of Mines and Forests shall be reorganized, its by-laws and rules being submitted to the Governor and the Court of Policy, its accounts audited annually by the auditor-general; no individual to be admitted to membership unless directly connected with one of the forest industries, the Council to satisfy itself as to the eligibility of candidates; the Council to consist of a president, vice-president, treasurer and six ordinary members, the president and vice-president not necessarily being members of the Institute; the Governor-in-Council having the power to nominate three members of Council, who need not be members of the Institute, and who need not be employers, in order to secure independent representations.

That the settlement of disputes should be facilitated by the submission of grievances to land officers in the districts, such statements to be admissible by law in any proceedings before the commissioner and in courts; the land officers to settle disputes whenever possible, and to visit grants when there are complaints of no balata or insufficient balata, insufficient food, over charges, ill treatment, etc.; that Balata Regulations be introduced on the basis of the Mining Regulations; the possession of balata, unless lawful ownership is proved, and illicit dealings in balata, being made punishable, as in the case of gold, diamonds and old brass.

That the time is inopportune for further increasing the taxation of the industry for general revenue, since it already contributes approximately $100,000 in excess of the total cost of the Lands and Mines Department, but that a tax of $10 for every 50 square miles of area held be imposed for development purposes; that as little interference as possible should be made with the freedom of contract, but that certain conditions should be met, such, for instance, as that there shall be only one general form of contract, containing the conditions of universal application, and the outlines of optional stipulations, the price to be paid for balata and the method of payment to be agreed upon, a list of provisions to be included, with the prices, the laborers to be asked to pay no more than the Georgetown price, saving a reasonable allowance for transport, store-keeping expense, depreciation and loss, all profits from dealings in supplies between employers and laborers being discouraged; contracts to state whether the work is to include bleeding or prospecting or both; compensation amounting to $20 or $30 to be paid when no wood is found on a prospected grant; contracts to state whether the work is to include the clearing of creeks, cutting of fixed paths or transport work, a fixed rate of pay being mentioned; that the *livrette* system shall be adopted; that advances should be limited to $20 for laborers for work below the Falls and $30 above the Falls, and for foremen $35 below and $40 above; that $60 be the maximum indebtedness recoverable from a laborer, and that three-fifths of this maximum be recoverable in the following season by a lien to hold good upon any balance due to the laborer from any second employer.

CRITICISM OF THE REPORT.

The proposals of the committee have not escaped criticism. It is felt that the transference of registration to the Lands and Mines Department is a mistake, because it would cripple the Institute financially, and because the Lands and Mines Department would probably not do the work as well. Many gentlemen, interested in the industry, have taken this view. The case for the Institute has been most powerfully stated by its counsel, Mr. W. Maynard Payne, Licencees do not regard with favor either, the suggestion that a development tax should be imposed. They point out that a similar tax was put on the gold industry, and that the money went into the general revenue, chiefly to pay officials' pensions with. It is also pointed out that the industry cannot bear further burdens. It is suggested also that it would not find favor unless the money collected from each company was spent on that company's property. This, however, would appear to be an argument not entitled to much consideration. Similarly, the plea that the industry is already overburdened, is to be met with the reply that inasmuch as profits are small owing to the high costs of production, investment in directions calculated to reduce those costs, such as this proposed tax amounts to, would be wise. The fear that the money would go to swell the general revenue is a reasonable one, and the contingency would undoubtedly have to be provided against. I am inclined to doubt if the proposals for dealing with the absconding evil will fully meet the case. The report is very ample and informing, and may render the industry some assistance, but whether it will solve all its problems is open to considerable doubt.

CUTTING DOWN OF BALATA TREES—ALLURING FIGURES.

The theory that the cutting down of balata trees will prove the salvation of the balata industry has cropped up again; Mr. Henry Daley, attorney of the Essequibo Rubber and Tobacco Estates, against which concern a compulsory winding-up order has been made, having raised the question. It may prove the salvation of some companies which are near bankruptcy, but it is questionable whether it will save the industry. Mr. Daley gives us some glowing figures. He suggests, that as the cost of collection will be one-third of what it is now, and as the output will be three times as great, the balata licencees will be willing to pay a royalty of six cents per pound of balata, and that 5,000 men would be provided with work for 25 years, from which the government would draw in royalties $100,000 per annum. He suggests that this would provide the guarantee of interest on any railway scheme that might be put forward, and that as the future for balata is anything but bright, owing to the fact that low-grade rubber on vulcanization makes the best belting, permission should at once be given. Mr. Daley's figures are purely approximate and have already been questioned. The proposal is unlikely to secure a large measure of public support and the Administration will scarcely give it effect.

THE BALATA TRADE—PRINCIPAL CONSUMERS OF THE EXPORT.

The report of the Comptroller of Customs for the financial year 1911-12 has just been issued. The following are the figures relating to the quinquennium:

	Pounds.	Value.
1907-1908	973,269	$373,640.14
1908-1909	1,090,405	471,016.89
1909-1910	1,034,076	468,034.81
1910-1911	1,162,558	670,192.32
1911-1912	1,101,593	673,350.11

The industry thus, despite its many troubles, is in a progressive condition so far as output is concerned. Although the exports in 1911-12 were slightly smaller than in the preceding year, values were somewhat better. The following table gives the direction of the exports:

	UNITED KINGDOM.		UNITED STATES.	
	Pounds.	Value.	Pounds	Value.
1907-1908	625,531	$237,409	259,189	$111,296
1908-1909	734,665	321,166	248,715	103,543
1909-1910	764,131	353,938	186,456	75,938
1910-1911	786,759	483,342	101,217	75,181
1911-1912	923,759	542,123	175,602	129,887

CEARA RUBBER GROWING—POSSIBILITIES FOR THE INVESTMENT OF CAPITAL.

I have had a conversation with Mr. H. P. C. Melville, Commissioner of the Rupununi District, which includes the Savannahs bordering on the Brazilian Savannahs, and he informs me that the possibilities of establishing a Ceara rubber industry there are most favorable. The opportunity for the prudent investment of capital appears to be an excellent one. Mr. Melville, who has a homestead in the district, has planted a fairly large acreage to Ceara trees. His trees are now four years old and he has commenced tapping, in order to obtain a commercial sample for the New York exhibition, but on learning that no colony exhibit was to be sent, he confined his work to experimental tappings. He obtained from twelve trees after eight days' tapping 1½ pounds of rubber, of which only ¼ pound was "scrap," the remainder being very fine amber-colored biscuits. Mr. Melville informs me that there is a large area in the district available for the cultivation of Ceara, and that he has no doubt even if rubber goes to 2s. 6d. per pound a fair margin of profit would be secured. Means of communication are defective, but not such as to lessen the possibility of profitably conducting the industry, which, if established, would further influence public opinion in favor of the trunk railway, in which direction it is already strongly inclining. It may be of interest to point out that the Department of Agriculture has already spoken favorably upon the possibilities of Ceara cultivation on the Savannah. On the coast lands it has proved unsatisfactory, but on the Savannah area the growth of *Manihot Glaziovii* has been very good. They state that this district of the far interior resembles in many of its characteristics the Ceara district of Brazil. There would appear to be every reason to believe that the district is well suited to the cultivation of Ceara rubber, and that early returns could be obtained. Mr. Melville's information more than establishes this.

MEXICAN RUBBER WEALTH.

According to a carefully prepared table of the present wealth of Mexico, which has been transmitted to our government by the American Consul at Chihuahua, the rubber industry of Mexico is valued at $22,000,000, $15,000,000 of which is owned by Americans, $2,500,000 by other foreigners, and $4,500,000 by citizens of Mexico.

TESTING RUBBER AT PLANTATIONS.

IN recent discussions of the question of testing rubber at plantations it has been pointed out that it is very difficult for planters and manufacturers to keep in touch with each other. Rubber goes on to the market and passes into the hands of the manufacturer. Some seems to go well and some does not prove satisfactory, but the planter cannot usually ascertain the precise reason.

With a view to affording a solution of this difficulty, it has been asked whether the planter can maintain a uniform standard of quality, so that if he furnishes a commodity approved by the market, he may continue to furnish that product. The question is then: By what means can the planter so keep track of a quality produced that his subsequent product shall be according to that particular standard?

According to statements of plantation experts, there is at present no test of the character indicated, the only one being the negative test of keeping the rubber free from tackiness. In this connection the suggestion has been made that while an absolute test may seem impracticable, a comparative test can be carried out. The principal difficulty seems to lie in the application of a reliable test for elasticity, which, of course, is the principal characteristic of a good rubber. At the London Rubber Congress of 1911, Dr. Huber described a comparative test which showed which of two strips of rubber was the stronger. While such was not an ideal test, it would enable the planter to ascertain whether one lot was inferior to another. The difficulty has been pointed out, however, of getting two pieces of rubber exactly alike in all three dimensions.

The planter's idea should be, it has been urged, to ship plantation rubber free from traces of the coagulating medium and entirely dry, so that further washing and drying by the manufacturer will not be necessary. Traces of the coagulant or of moisture will affect the vulcanization by the manufacturer. It has also been suggested for planters to test rubber in the early stages, and not to wait till it is in block form.

While the desirability of plantation tests of rubber has been forcibly represented, their practicability has been questioned. It has, however, been considered possible, that uniformity in the quality of rubber produced might be ensured by uniformity in the methods of preparation. This uniformity is naturally a matter which planters can control for themselves, on the principle that like treatment of a like material will produce like results wherever the tests are made. Uniformity of product can be obtained, it has been urged, by simply keeping to the same conditions all the way through—from the collection of the latex to the shipment of the rubber.

While a good deal of attention has thus been paid to the question of the testing of rubber at plantations, as compared with previous shipments, the establishment of uniform standards, to which both should conform, would carry the question a step further, necessitating a definite understanding between planters and consumers. It has been pointed out that the quality of a rubber does not wholly depend on its tangible external characteristics, but on the local conditions, which call for study before setting a standard based on external appearance. It has likewise been represented that too exacting requirements should not be applied to planters on the subject of uniformity, it being urged that no manufacturing process could be relied upon to obtain a uniform product by simply observing the same conditions throughout. Methods have, however, been evolved, by which manufacturers can tell when they are going wrong and can prevent evil consequences.

The place where the manufacturer comes into close touch with rubber, and where he draws his first accurate conclusion, is where he vulcanizes it, and the vulcanization test is not by any means out of the question on plantations. A simple little mixing

mill, and perhaps a calender for calendering sheets, and a little vulcanizing press, could be laid down, it is asserted, for something like $1,250.

The problem is to get uniformity, the lack of which is regarded as the growing evil of the whole rubber planting industry. Let us hope that the New York Rubber Congress will carry the matter a long step further, in continuation of the valuable work done by the London Congress.

BRAZILIAN NOTES.

UNDER date of July 26, a Brazilian decree was issued embodying the new regulations of the Brazilian Minister of Agriculture, adopted as a result of the late rubber congress. These regulations were reproduced in THE INDIA RUBBER WORLD of June, 1912 (p. 427).

They provide for a reduction in the cost of material and tools, for prizes to be given to rubber growers, and for establishing experimental farms and rubber factories in Brazil. Further inducements are to be offered to immigrants, and it is proposed to erect hospitals in the Amazon Valley to serve as a nucleus of agricultural colonies which are to be founded. It is also intended to reduce freights on the Amazon River, to improve the navigation of other important rivers, to establish food-producing factories, to lease State properties, and to organize triennial exhibitions. The measure, which will come into force immediately, has been well received.

THE BRAZILIAN RUBBER SYNDICATE A FACT.

According to a recent report from the American Consul at Pará, the Brazilian Rubber Syndicate is now an accomplished fact. He writes under date of July 15 as follows:

"Final arrangements have been concluded between the Bank of Brazil and the parties interested in and forming the syndicate organized in 1910 to increase the price of rubber whereby the latter will, under conditions as yet unknown, take charge of and dispose of same. The amount of rubber held by the Bank of Brazil as collateral for money advanced to finance the aforementioned scheme is 2,400 tons. I am informed that it is the present intention of the directors in charge of this liquidation to dispose of this rubber to bona fide manufacturers only, hoping in this way to avoid manipulation by dealers who might be interested in affecting the price of the coming crop. I am further informed that the rubber is only to be sold and shipped from here, as its storage in either London, Liverpool or New York might have the effect of depressing present prices. This rubber is all of first quality, being bone-dry, and should on its merits command a higher price than new rubber."

AMAZON STEAM NAVIGATION COMPANY, LIMITED.

The winding up of this company, which commenced in May, 1911, was practically completed by May 4, 1912, at the date of the report lately issued by the liquidators.

By the sale of the fleet of steamers, lighters and tugs, the fixed property in Brazil has been disposed of upon terms which, in the liquidators' opinion, were very advantageous to the company. This almost total realization of assets has permitted the return to the shareholders of the whole of the issued capital of 40,419 shares of £12 10s. each, fully paid, in addition to a surplus of £2 per share. A further small return still remains to be made, the amount and date of which cannot yet be announced; several of the items still forming the subject of litigation.

A notable feature of the liquidation is the relatively small expense it has involved. The collection of nearly £600,000 has been effected at a cost for salaries in London and Brazil, representing less than £3,000, or about ½ per cent.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

SOME NEWS NOTES FROM MANAOS.

By a Resident Correspondent.

THE Commercial Association is still actively engaged in preparations for the forthcoming rubber exhibition. By the steamers leaving here (Manáos) August 17 and 27, thirty tons of uncut rubber will be forwarded to New York to be placed on view at the exhibition. Among this rubber, which will come from the Matto Grosso and Acre districts, as well as from Amazonas, there will be one "pelle" weighing 518 ks. (1,140 lbs.). Another interesting exhibit will be a section of a very large *Hevea* tree.

Illustrated pamphlets in three languages are being prepared for free distribution from the Amazonas section. There will be a pamphlet for each State represented. The illustrations in the book of the Acre district are from photographs taken by Prof. Ule, a German explorer, who visited the Acre in behalf of the Manáos Commercial Association last year. He made a full report of the conditions found, and of the prospects for development of that district, which he will publish later.

The Amazonas pamphlet will be written by Sr. Manoel Lobato, the private secretary of Governor Bittencourt. The governor is displaying great interest in the plans of the Commercial Association, and is doing all in his power to assist them in making this State's representation at the exhibition worthy of the region from which it comes. He is sending Sr. Lobato to New York as his personal representative, in addition to the representatives of the Commercial Associations named in the Manáos Notes, which appeared in the July issuse of THE INDIA RUBBER WORLD.

There will be one contestant from Amazonas for the prize offered for the best plantation rubber. Sr. Da Costa, a young Brazilian, educated in England, who with his father has rubber estates on the Madeira River, will show sheet rubber made by himself from the milk of planted trees, cured by the Eastern process, in place of the original Brazilian method of smoking it. He claims that his product is superior to that usually shipped from here.

The political situation here has cleared up. Before the election (July 14) there was a general feeling that there might be an outbreak of the bad feeling between the Néry and Bittencourt factions, similar to that of October, 1910. However, a conciliatory ticket was arranged, and the candidates, Dr. Jonathas Pedrosa for governor, and Sr. Guerreiro Antony (vice-governor), were elected for a term of four years from January 1, 1913. Dr. Pedrosa, who now lives in Rio de Janeiro, is an old Mananense, and it is expected that he will take great interest in the development of this State.

There has been talk for some time of running a railway from here to Itacoatiara. Dr. Jorge Estrellita has received a concession from the Government, giving him permission to build it. The first stake of the preliminary survey was driven last month, attended by an elaborate public demonstration. As Itacoatiara is a river port easily reached by steamers in a few hours from here, the necessity of the proposed railway is not apparent.

The official opening of the Madeira-Mamoré Railway has been postponed until next month (September). Mr. R. H. May, head of the contractors, has left for Rio de Janeiro, going thence to Europe. Mr. Jekyll sails by this steamer for New York. Mr. Dohse, who has been chief engineer of the undertaking for the past two years, has been left in charge. He is now on his way to Bolivia to start work on another piece of railway to join the Madeira-Mamoré.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Trees and All About Them; Rubber Trade Directory of the World.

NEW TRADE PUBLICATIONS.

THE industrious advertising department of the B. F. Goodrich Co., Akron, Ohio, has just issued a series of pamphlets on a variety of rubber topics, which will interest divers people. One is a folder which might properly be termed, "A yard of fire department," as when spread flat it is three feet long, and shows, on one side, a procession of six combination hose wagons and chemical engines, used by the city of Birmingham, Alabama, all of them being equipped with the "Goodrich Wireless Tires." The rest of the space in the folder is given over to an argument in favor of the "Goodrich Wireless Tires" for fire engine equipment, in five chapters—each assigning a particular reason for the use of these tires. Briefly stated the reasons are as follows: that they are safest for firemen and bystanders; that they never cause delay; that they are designed for heavy service; that they permit the least vibration, and that they mean the lowest tire expense.

Another folder refers to the hygienic rubber-covered air mattress made by the company, which is particularly commended for hospital use. The third folder illustrates and describes rubber crutch tips—a very desirable device, in slippery weather, for unfortunate people who have to use crutches.

A fourth folder printed in chrome, green and black, describes the "Nugget" water-bottle, a Goodrich creation with patented lap-seam construction which fortifies the joints against weakness and leakage. A fifth leaflet entitled "Two Ounces of Prevention" is devoted to "Plastic," a substance made by the Goodrich company for quick tire repairing. This is made of pure rubber and readily incorporates with the substance of the tire, in such a way that it becomes practically invisible. This is sold in small cans and intended for such repairs as the motorist has to make while on the road. Three other folders describe three different varieties of syringes made by the Goodrich company. The whole series of folders may be commended, because of their artistic printing, convenient size for distribution, and the succinctness of the various descriptions.

The J. T. Baker Chemical Co., issued in July No. 5 of its little periodical publication entitled "The Chemist-Analyst." While the primary object of this publication is to call attention to the chemicals made by the company, the publishers with much wisdom, put a quantity of interesting chemical matter in it, to make it of value to chemists generally. In order to secure good contributions they offer prizes of from $25 to $10 for articles on specified chemical subjects. The July issue contains articles that took first and second prizes on "Copper Analysis."

"Rubber Clothing" is the name of a 32-page catalogue just issued by the Walpole Rubber Co., Boston, Massachusetts.

It is a finely printed book and contains a dozen or fifteen large cuts nearly full page size, showing the variety of raincoats which the company makes, including the "Zephyr" coat for city wear, policemen's coats, firemen's coats, drivers' coats, Raglan coats, auto coats, and coats for boys. Any dealer in rubber coats will find this catalogue interesting.

The Banigan Rubber Co. of Baltimore, Maryland, has issued a 52-page catalog of the rubber clothing sold by that company. This catalog may be commended particularly for its artistic cover, which is printed in olive green and black, on a coffee-tinted paper. It shows a tasteful design, brought out in strong relief by embossing. The catalog illustrates a great variety of rubber coats for men and women. The uninitiated will be surprised to find that there is such a variety of rubber coats. A few pages are devoted to other waterproof goods, like hats, leggings and over-gaiters. The company describes itself as a "progressive rubber goods house." There is no implication, however, in this word "progressive" that orders received from followers of the Taft and Wilson tickets will not be gladly welcomed and promptly filled.

AN INTERESTING COURT DECISION.

AN extremely interesting decision was recently handed down by the Appellate Division of the Supreme Court of New York State, in an action brought by a rubber manufacturing company against the National Board of Fire Underwriters. The underwriters had made a motion to have certain irrelevant matter stricken out from the complaint. This had been granted in part, but not fully, by the lower court. The defendants then carried the case to the Appellate Division and moved to have the rest of the irrelevant matter stricken out. The motion was granted, and in the course of the judge's remarks he introduced by way of precedent some decidedly unique historical matter, that gave the case an unusual interest. Citations from the ancient law were as follows:

"Unnecessarily prolix and verbose pleadings in equity causes are not of modern invention. So early as 1566 a replication was filed in Mylward vs. Welden (Tothill 101) which so excited the indignation of the Chancellor that he ordered as follows: 'For as much as it now appeared to this court by report made by the now Lord Keeper, then Master of Rolls, upon consideration had of the plaintiff's replication according to an order of the 7th of May of anno 37 Reginae that the said replication doth amount to six score sheets of paper and yet all the matter thereof which is pertinent might have been well contrived in sixteen sheets of paper . . . and because his lordship is of opinion that such an abuse is not in any sort to be tolerated—proceedings of a malicious purpose to increase the defendant's charge and being fraught with such impertinent matter not fit for the court. It is therefore ordered that the Warden of the Fleet shall take the said Richard Mylward, alias Alexander, into his custody and shall bring him into Westminster Hall on Saturday next about 10 of the clock in the forenoon and then and there shall cut a hole in the midst of the same engrossed Replication which is delivered unto him for that purpose, and put the said Richard's head through the same hole, and so let the same Replication hang about his shoulders with the written side hanging outward, and then, the same so hanging, shall lead the said Richard bareheaded and barefaced round about Westminster Hall, whilst the Courts are sitting, and shall show him at the Bar of every of the three Courts within the Hall, and then shall take him back again to the Fleet, and keep him prisoner until he shall have paid £10 to her Majesty for a fine and 20 nobles to the defendant for his costs in respect of the aforesaid abuse.'

"Modern methods of dealing with such pleadings are less drastic, and confined to striking out the objectionable matter."

The full court concurred with the justice who rendered the decision in granting the defendant's motion.

AUTO EXPORTS INCREASING MOST RAPIDLY.

The most rapidly increasing exports of American manufactures during the last ten years have been in the automobile trade. In 1902 the value of automobile exports from the United States was less than one million dollars. In 1908 it had increased to five and one-quarter million, and in 1912 it will amount to twenty-eight million dollars. That is, it has increased twenty-eight times in ten years. Of this twenty-eight million dollars, two and one-half million is represented by tires.

Should be on every rubber man's desk—The Rubber Trade Directory of The World, 1912.

The Editor's Book Table.

INDEX OF PLANTS AT BOTANIC GARDENS, SINGAPORE. SINGAPORE, 1912. [8vo, 152 pages.]

IN no other branch of industry does there exist that close connection between scientific research and commercial enterprise, which links botany with rubber cultivation. The work of zealous scientists at botanic gardens and experimental stations, paves the way for that of the analysts and experts, who, at a later stage, carry on technical investigations.

While primarily intended for the purpose of facilitating the exchange of plants and seeds with other botanic stations throughout the world, and thus being subject to frequent changes and additions, the "Index of Plants," lately issued by the Botanic Gardens of Singapore, is intended as the foundation of a complete text-book on the subject. This object will be attained by yearly supplements, bringing the work as much as possible up to date.

The work starts with a list of 140 natural orders of plants, with their various divisions, subdivisions and habitats, occupying 130 pages. This is followed by a general index, classifying the preceding matter in alphabetical form; this portion of the book covering 19 pages and including over 2,000 references. The botanical wealth of the gardens is thus abundantly illustrated.

In order to facilitate the selection of economic plants, an appendix has been added, in which lists are given of the various plants, classified according to their economic characteristics. This appendix includes the following varieties:—edible fruits, 78; fiber and textile plants, etc., 24; spices, 9; scents, perfumery, etc., 7; oils, 18; gum resin, oleo-resin, etc., 6; dyes, tanning plants, etc., 15; and drugs, antiseptics, etc., 35. Last in order, but first in importance to rubber men, comes a list of 23 orders of rubber-producing plants. These include not only the better known varieties, such as *Hevea, Castilloa, Ficus, Kickxia, Manihot and Sapium,* but others, the mention of which will doubtless invite the attention of planters and scientists in all parts of the world.

The contents of the work will, in a future edition, be graphically illustrated by a "Guide to the Botanic Garden, Singapore," the plans in which will enable visitors to locate any desired variety.

Mr. J. W. Anderson, assistant curator of the Botanic Gardens, and compiler of the work, deserves much credit for the lucid manner in which he has accomplished his task. In the introduction, he acknowledges his indebtedness to Mr. H. N. Ridley for his assistance with endemic plants.

THE YEAR BOOK OF THE UNITED STATES DEPARTMENT OF Agriculture for 1911. Washington: Government Printing Office, 1912. [8vo. 740 pp. Board covers.]

The Government is certainly generous in its latest agricultural year book. This is a volume aggregating 740 pages, and contains 67 full-page illustrations—nine of them very handsomely printed in colors. The book contains, besides a vast volume of valuable statistical matter, 31 brand new articles on agricultural topics, contributed by recognized experts, none of these articles having previously appeared in any printed form.

An interesting fact will be noticed from the figures compiled in this book as compared with the figures given in the Year Book for 1910; namely, that while the yields of various crops had fallen off in volume, they had, as a general thing, appreciated noticeably in value. For instance, the corn crop for 1911 was 355,000,000 bushels less than the year before, but its money value was $180,000,000 more. This was owing to the higher prices obtained because of the smaller crop; which shows that a farmer may really gain where he appears to lose.

The book contains as a frontispiece the portrait of the late S. A. Knapp, who died in April, 1911, and whose work in connection with the Government Department of Agriculture was of such great value—especially to the rice and cotton growers of the South.

The only reference to rubber contained in this book consists of several tables—quite complete and instructive—of the imports and exports of crude rubber to and from the United States. But we may confidently expect in some future Year Book that the progress of rubber culture in the Philippines and the Hawaiian Islands may be described, and possibly, if we were to look forward several years in the future, we might find a number of pages devoted to rubber growing in our Southern States. If Guayule grows wild in Texas in sufficient quantities to warrant its profitable collection, why should we not expect some day to be using United States grown rubber?

This is a book that every alert farmer ought to have, and he can undoubtedly get it by communicating with his Congressman, as out of the edition of 500,000 copies, 470,000 copies are at the disposal of our representatives of Washington.

RUBBER HAND STAMPS AND THE MANIPULATION OF INDIA Rubber. By T. O'Conor Sloane, A.M., E.M., PH.D. New York, 1912. The Norman W. Henley Publishing Co. [8vo, 168 pp. Price $1.]

Using a rubber stamp has become such a practically automatic commercial habit, that the business man rarely stops to think how much research and scientific investigation was necessary before the stamp was ready for use.

In the above small volume Professor Sloane has told the story of the rubber stamp from a scientific as well as an industrial point of view, dealing in succession with the cultivation and collection of crude rubber as well as with the properties of unvulcanized and vulcanized rubber. The subject of rubber stamp and type making is then taken up in detail, from the outlines of moulding to the finished product, the descriptions being concise and lucid.

Rubber stamps, though forming a subject of interest, do not by any means exhaust the illustrations Professor Sloane gives of the manipulation of rubber; sheet rubber articles, toy balloons, pencil tips and other features of the rubber industry being also dealt with.

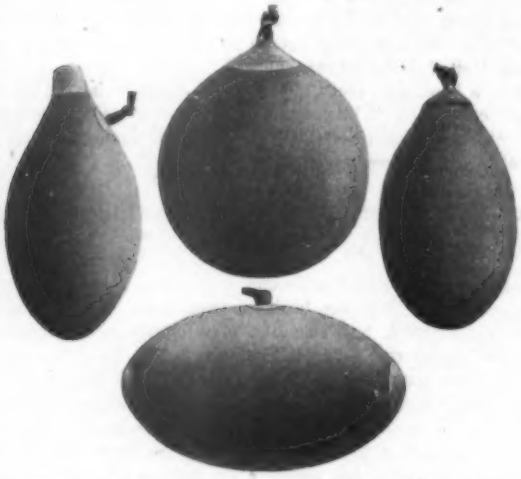
In view of the growing importance of the rubber stamp industry, this comprehensive treatise is a welcome addition to industrial and technical literature. The present volume is a new edition; the appreciation of the earlier editors being thus demonstrated.

The August issue of the magazine called "The Goodrich" consists of 32 pages, and contains a great deal of readable matter. To begin with, there is the opening chapter of an interesting story by Alexander P. Rogers, descriptive of a trip he took last summer up the Amazon, Madeira and Mamoré rivers to the point where the Guapore flows into the Mamoré, and thence up the Guapore, nearly a thousand miles, making all-told a river trip of nearly 3,000 miles. His description of the shooting of the rapids in the Madeira river is exceedingly interesting. The account is illustrated by a number of half-tone cuts made from photographs taken on the trip. Other articles worth reading are "A History of Pneumatic Tires," which begins in this number, and "Economical Tire Equipment," which has to do with truck tires. The publication is liberally illustrated, and contains enough interesting matter to insure its being kept, and also being read, by anyone who is concerned in any way with the production, sale, or use of tires.

New Rubber Goods in the Market.

FOR FOOTBALLS AND STRIKING BAGS.

IT would be a sad day for athletes if there were no rubber in the world. For instance without rubber there would be no football and without football half the colleges would close down entirely, and the other half shrink fifty per cent. Here's an interesting group of illustrations, showing the rubber envelopes or "bladders" for a football, a regular shaped striking bag and two pear-shaped striking bags. None of these can burst at the seam, no matter how hard a kick or a blow they receive, because there aren't any seam; they are made seamless.



SEAMLESS STRIKING BAG AND FOOTBALL BLADDERS.

They are made in both maroon and black and lined with white. The manufacturers also make basketball envelopes in the same seamless style. They make three sizes of football bladders, two sizes of basketball, three sizes of the regular striking bag, and two sizes of the pear-shaped striking bag. [The L. & M. Rubber Co., Carrollton, Ohio.]

WHAT TIRE CLIPS WILL DO.

Tire clips are of obvious convenience to motorists who are provident enough to carry along additional casings. These clips hook over the beads of the casing preventing spreading, and also preventing the inside tube from getting out. With these clips, the casing can be carried ready for instant use, with the inner tube in place, and partially inflated. The manufacturers state that a tire change can be made in five minutes with rims having but one flange or locking ring. No tools are required except a pair of hands. Where the rims have two rings on the detachable side, it requires a little longer. The clips which are here illustrated are sold in sets of twenty-five, which is enough to equip five tires. These clips are intended for tires to be used on wheels having quick detachable rims. [Draver Mfg. Co., Richmond, Indiana.]

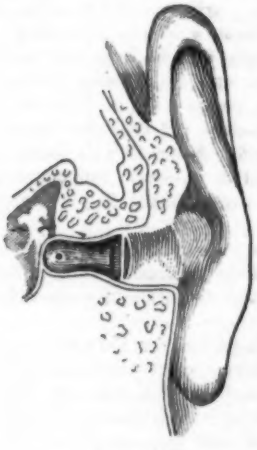
TIRE CLIPS FOR EXTRA CASINGS.

A HARD RUBBER INHALER FOR CATARRH.

The English woman who went home after a visit to this country and reported that "Americans are such charming people, it is really too bad that they all have catarrh," did not state the case with absolute accuracy, because all Americans do not have catarrh. But unfortunately a great many of them do. For all such, a hard rubber inhaler has been made which is shown in the accompanying cut; this cut being one-third the size of the article itself. The method of operation is simple. The cap, which, in the illustration appears at the bottom of the inhaler, is unscrewed, and a few drops of medicated liquid are poured in on some gauze placed inside the tubes. The cap is then replaced, the two prongs applied to the nostrils, and the fumes of the medicated liquid duly inhaled. If the patient has sore throat or a cough, the single end of the inhaler, with the cap removed, may be placed in the mouth, and inhalation be taken through the throat. [Windle Supply Co., Philadelphia, Pennsylvania.]

RUBBER MAKES THE DEAF HEAR.

It has long been known that rubber helps the lame to walk, because in the form of bandages it gives strength and vigor to defective limbs; and that it helps the blind to see, for in the form of hard rubber rims it holds the necessary lenses. But even more directly it makes the deaf hear.



WILSON'S IMPROVED COMMON-SENSE EAR-DRUM.

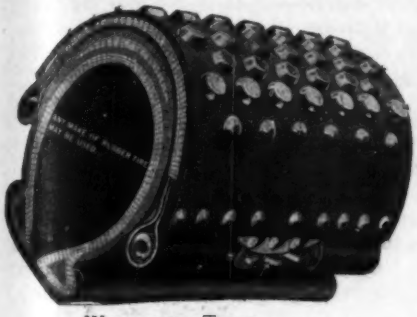
The accompanying illustration shows an ingenious little device, made of the finest Pará rubber, which fits into the auditory canal and gathers and conveys the sound waves to an impaired tympanum. The smaller illustration, showing this rubber ear-drum in the ear, is just the size of the device, the lower cut being magnified in order to give a better idea of its construction. It will be noticed that the outer edge flares a trifle so as to fit the flare of the canal of the ear at that point and also to receive all sound waves. The inner end has one or more perforations simply for the purpose of ventilation—to keep the ear from becoming uncomfortably hot. This rubber drum is so light and delicate that it can be worn without discomfort. Where the tympanum is impaired this rubber drum assists it in its work. Where it is destroyed it is claimed that it does the work of the natural drum to a considerable extent. It was invented by George H. Wilson, of Louisville, Kentueky, to meet his own necessities, as he was so unfortunate as to be extremely deaf.

In its earlier and cruder form it came on the market about 20 years ago. As shown above it is much improved over its earlier form. The cross piece which will be noticed in the lower cut is for the purpose of keeping the delicate rubber tube from collapsing. [Wilson Ear-Drum Co., Louisville, Kentucky.]

Should be on every rubber man's desk—The Rubber Trade Directory of The World, 1912.

A LEATHER SHOE TO SAVE THE TIRE.

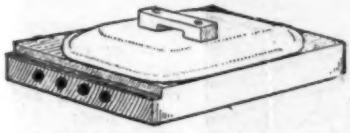
On the human foot it is the custom to have a rubber overshoe to save the leather shoe by keeping it dry, but in the Woodworth tread for automobile tires the case is reversed, for here we have a leather shoe that goes over the rubber shoe of the tire to protect and preserve it. This Woodworth tread consists of several layers of especially prepared leather, some inelastic fabric being interlaid between the pieces of leather, and all fastened together by a large number of steel rivets, the outside heads of which serve as studs, to increase the wear and to prevent skidding. This leather shoe is held on the rubber tire by springs running along both edges, which are hooked together after the tread is put on the tire and thus serve to keep it in place. There is no rubber in this Woodworth tread, but its mission as a rubber preserver seems to entitle it to this mention. The accompanying cut will give an idea of its construction. [Leather Tire Goods Co., Niagara Falls, New York.]



WOODWORTH TREAD.

THE DIAPHRAGM PNEUMATIC.

The Angelus Piano-Player, it is claimed, more closely resembles the human touch than that of any other automatic player. This is accomplished by means of a "Diaphragm Pneumatic," which, when in the act of striking, becomes filled with air, giving a light, resilient touch, closely resembling that of the human fingers. Other players use a contrivance run by a bellows system that is worked by an exhaust, and when a note strikes the air is completely withdrawn. [Wilcox & White Co., Meriden, Connecticut.]



DIAPHRAGM PNEUMATIC INFLATED FOR STRIKING.

THE SNORER TO BE EFFECTIVELY RUBBERED.

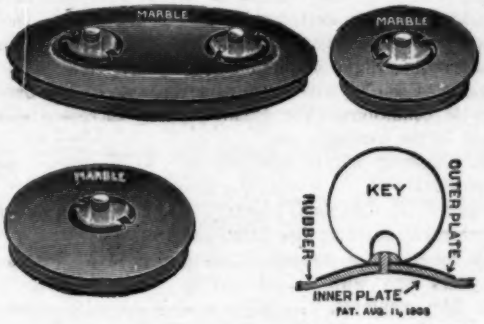
There are plenty of men who will not display the slightest interest when you tell them that the rubber industry now amounts to nearly half a billion dollars a year, and that in the United States alone its annual value is over $200,000,000, who will become keenly interested when you tell them that some inventive genius has devised a little rubber contrivance that prevents all snoring.

This is a device made of soft wool, interwoven with rubber threads, that goes over the top of the head, down under the chin and is held in place by a band going around the back of the head. The softness of the wool and the elasticity of the rubber are intended to conduce to the comfort of the wearer, while the rubber in the band being slightly stretched when it goes under the chin, is intended to keep the snorer's mouth quietly and decently closed, and thus conduce much to the comfort of the wearer's neighbors.

City people whose bedroom windows open out on air-shafts on which many other bedroom windows also open, will be delighted to know that these snore-suppressors can be secured at 40 cents retail; so that at a little expense and with a discriminating distribution of these little devices, they may pass the night in peace and comfort.

MENDING HOLES IN RUBBER BOOTS.

If there is anything irritating in human experience, it is the sensation of the hunter or fisherman who has paid $6 or $7 for a pair of rubber boots, and then run a sharp point through the foot or the leg. Naturally he does not care to throw away these boots, and yet to wear them with the water coming through the puncture is not particularly agreeable.



Here is a small device which comes in various sizes, as shown by the accompanying cuts, that will relieve the wearer of the boots from his distress. It is called the "Easy-Quick" repairer, and consists of two concave plates which fasten together. The lower plate which goes inside of the punctured rubber has a threaded pivot which projects through a hole in the upper plate. The two are held together with a flush nut without the use of any cement or glue. The inner plate is so thin that it does not irritate the foot or the leg, and the repair can be made in a minute.

These repairers come in various sizes and cost only a few cents. A key to tighten the nut is supplied with them. [Marble Arms & Manufacturing Co., Gladstone, Michigan.]

"SIMPLEX" BREAST PUMP.

A new breast pump, thoroughly sanitary, has just been put on the market. It is of convenient size, and the glass is made to fit the breast comfortably. The reservoir is easily kept clean, and is so shaped that its interior can be reached by the finger. The rubber bulb is attached to the glass by a screw thread and can be easily removed for cleaning. This pump is absolutely new and promises to be much used owing to its simplicity in construction and its comfort in use. [Whitall Tatum Co., 46 Barclay street, New York.]

NEW USE FOR RUBBER HOSE.

New uses for rubber hose are being discovered every day. Here is one that bids fair to be employed extensively. The old system of removing old paint by scraping it off was exceedingly laborious and wasteful of time. That method has been superseded by the application of paint removers, in liquid form, which attack the oil which holds the paint to the surface. These paint removers can be applied by hand, but by the use of rubber hose they can be applied much more rapidly and easily. The liquid paint remover is put in a tank where it is kept under the pressure of compressed air. A pipe, the inner end of which is submerged in the remover, extends through the wall of the tank and is fitted to a rubber hose of any desired length, at the end of which there is a spray nozzle. When the governing valve is opened, the compressed air forces the liquid through the hose and nozzle, and it strikes the painted surface in the form of a spray.

News of the American Rubber Trade.

RAPID GROWTH OF THE FAULTLESS RUBBER CO.

AT the last annual meeting of the Faultless Rubber Co., Ashland, Ohio, held the last of July, it was voted to increase the capital stock from $325,000 to $1,000,000. The stockholders will receive a 60 per cent. dividend in stock on the old capitalization. Eight hundred shares of the new stock of the par value of $80,000 will be set aside for sale to employes under favorable conditions. The balance of the increased stock will be held in the treasury.

The following officers were elected: T. W. Miller, president and treasurer; P. A. Myers, vice-president; I. L. Miller, secretary, and C. E. Campbell, general manager. These officers with C. E. Myers constitute the board of directors.

This company has enjoyed phenomenal growth. It was started five years ago with about fifty employes. It now employs nearly 400 people. Its plant has received constant additions during the last three years. The last addition is a large building 85 x 155 feet, to be used exclusively for dipped goods. It embodies every modern feature. One that may be cited is an installation which thoroughly washes and purifies the air and removes all fumes of gases. This system can purify 30,000 cubic feet of air per minute.

THE FAULTLESS RUBBER CO.

NEW YORK RUBBER RECLAIMING CO.'S NEW MEN.

The fact was mentioned in the August issue of THE INDIA RUBBER WORLD that William F. Askam, one of the oldest rubber reclaimers, had associated himself with the New York Rubber Reclaiming Co., New York City. He has rearranged the mill of this company and introduced a number of improvements. The company is turning out high-grade shoddy for the insulated wire trade.

Henry H. Marshall has also been secured by this company and will act as superintendent and general manager.

TWO NEW BUILDINGS FOR THE FISK RUBBER CO.

The Fisk Rubber Co. is making extensive additions to its plant in Chicopee Falls, Massachusetts, in order to take care of the increased demand for automobile tires, tubes and bicycle tires. The contracts have been let to the Fred T. Ley Co., of Springfield, for two buildings—one building 250 feet long, 90 feet wide, six stories and basement, and another building 200 feet long, 60 feet wide, four stories and basement. The necessary rubber machinery, boilers and engine for power plant, when installed, will increase the present capacity about 50 per cent. This extra capacity will necessitate the employment of 600 or 700 more workmen. The buildings are to be completed and machinery installed by November 1, 1912.

THE HARMER RUBBER RECLAIMING WORKS.

There has been a great improvement at the Harmer Rubber Reclaiming Works, East Millstone, New Jersey, since the change in management took place. The factory is running to its full capacity, and working nights. They have recently reconstructed one of their buildings, 105 x 126 and 50 ft. high, formerly used for storing purposes, into a separate department for reclaiming auto tire friction, and other fabricated scrap for the trade, and have built up an extensive business along this line.

The company's plant is centrally located between New York and Philadelphia, on the Millstone branch of the Pennsylvania Railroad. It stands on the right bank of the Raritan and Delaware Canal, and enjoys ideal shipping facilities, both by rail and water. The company generates its own electric current for lighting, etc. A visitor at this plant finds a number of things worthy of note: The completeness and convenient arrangement of equipment; approved types of rubber-working machinery; modern well-lighted brick buildings, and last, the pains taken with the product in its manufacture. Careful attention to detail characterizes every stage of the work. Years of experience and a close study of the science of rubber reclamation have borne fruit in this modern plant.

THE REPUBLIC RUBBER CO. INCREASES CAPITAL.

At the special meeting called for August 1, the stockholders of The Republic Rubber Co. voted an increase of the authorized capital from $4,000,000 to $10,000,000. A number of extensions and improvements were discussed and the semi-annual statement was read, showing a large increase in the business of the company.

At the directors' meeting following, the board declared a special stock dividend of 35 per cent. to the common stockholders of record August 1. It is stated also that an offering of preferred stock will be forthcoming in a few months. The regular cash dividend at the rate of 2 per cent. per quarter was also declared by the directors.

MR. SPENCER TURNER TO BE MARRIED.

Mr. Spencer Turner, grandson of the late J. Spencer Turner, and son of Thomas M. Turner, of the Spencer Turner Co., New York City, will be married on September 14 at Pittsfield, Mass., to Miss Jessica Pomeroy Bishop, daughter of Mr. and Mrs. Henry W. Bishop of that place. The ceremony will be performed in St. Stephen's Episcopal Church and will be followed by a reception at Wiaka, the summer home of the bride's parents.

NEW INCORPORATIONS.

The Bloom Raincoat Co., August 16, 1912; under the laws of New York; authorized capital, $5,000. Incorporators: Abraham Bloom, 111 Seventh street, New York; Morris Blumenfeld and Celia Blumenfeld, both of 161 Tompkins avenue, Brooklyn, New York. Location of principal office, New York. To manufacture rubber clothing.

The East Palestine Rubber Co., July 25, 1912; under the laws of Ohio; authorized capital, $50,000. Incorporators: E. E. Jones, C. A. Oatsdean and O. L. Shumate. To manufacture automobiles and other vehicles and mechanical rubber goods.

Gardner-Hotte Sales Co., August 7, 1912; under the laws of New York; authorized capital, $10,000. Incorporators: John J. Gardner, George and William E. Hotte, all of Buffalo, New York. Location of principal office, Buffalo, New York. To deal in automobiles, tires, etc.

Greenpoint Tire Repair Co., August 17, 1912; under the laws of New York; authorized capital, $10,000. Incorporators: Charles L. Keller, 2 Jewel street, Brooklyn, New York, and Anna and John Kovacs, Jr., both of 36 Grand street, Brooklyn, New York. Location of principal office, Brooklyn, New York.

Hall Automatic Coupler Co., July 23, 1912; under the laws of New York; authorized capital, $250,000. Incorporators: Lucius M. Hall, Sardinia, New York; Edward S. Hall, 123 Norwood avenue, Buffalo, New York, and Lamont Shutles, 128 Bird avenue, Buffalo, New York. Location of principal office, Buffalo, New York. To manufacture garden and fire hose couplings, etc.

A. H. Kasner Tire Co., August 9, 1912; under the laws of New York; authorized capital, $10,000. Incorporators: Alexander H. and Hattie Kasner, both of 869 Eastern Parkway, and Antonio Massari, 1379 Sixty-seventh street, all of Brooklyn, New York. Location of principal office, New York. To deal in automobile tires, etc.

Kelly-Field Co., August 5, 1912; under the laws of New York; authorized capital, $10,000. Incorporators: Charles F. U. Kelly, Racine, Wisconsin; Harry E. Field and J. L. Boisse, both of 2 Rector street, New York. Location of principal office, New York. To manufacture automobiles, tires, etc.

M. & M. Tire Co., July 31, 1912; under the laws of New Jersey; authorized capital, $20,000. Incorporators: William McGinnis, 202 Academy street; Edgar W. Cresse, 39 Edgemere avenue, both of Trenton, New Jersey, and Walter A. Wood, Jenkintown, Pennsylvania. To manufacture, purchase, sell, etc., rubber boots, shoes and rubber of every description.

The Majestic Rubber Co., July 24, 1912; under the laws of Ohio; authorized capital, $3,000,000. Incorporators: J. A. H. Myers, O. W. Baum and E. V. Christman. To manufacture, deal in and buy rubber goods.

Newmastic Company, August 12, 1912; under the laws of New York; authorized capital, $250,000. Incorporators: Orrel A. Parker, 225 West End Avenue; Robert Weld, 625 West One Hundred and Fifty-sixth street, and Oliver H. Bartine, 135 East Forty-second street, all of New York. Location of principal office, New York. To manufacture rubber goods and tires.

O. & K. Rubber Co., August 1, 1912; under the laws of New York; authorized capital, $5,000. Incorporators: Aaron Oschrin, 411 East Ninth street; Samuel H. Kaplan, 785 East One Hundred and Fifty-first street, and Benjamin Oschrin, 390 Broadway, all of New York.

Rubberine Tire Filling & Sales Co., August 12, 1912; under the laws of New York; authorized capital, $500,000. Incorporators: James D. Bridges and J. Curtis Clarke, both of 233 West Fiftieth street, and George H. Davis, 146 East Thirty-second street, all of New York. To manufacture a tire filler called "Rubberine"—containing no rubber.

Rubber Specialties, Inc., August 1, 1912; under the laws of New York; authorized capital, $30,000. Incorporators: William S. Pounds, 317 East Seventeenth street, Brooklyn, New York; Alfred C. Eggers and Ludwig T. Eggers, both of 440 East Nineteenth street, Brooklyn, New York. Location of principal office, New York. To deal in rubber goods, etc.

Standard Rubber Cement Co., August 1, 1912; under the laws of New York; authorized capital, $100,000. Incorporators: Samuel A. and Carrie M. Berger, 56 East Eighty-seventh street, New York, and Philip Schoenfeld, 205 South Third street, Brooklyn, New York. Location of principal office, Brooklyn, New York. To manufacture rubber cement, glue, etc.

E. G. Stearns & Co., Inc., August 7, 1912; under the laws of Illinois; authorized capital, $35,000. Incorporators: Cecil Barnes, Charles L. Cobb and John Early. To manufacture and sell rubber goods and kindred articles.

Syncru Rubber Co., August 3, 1912; under the laws of New York; authorized capital, $1,000. Incorporators: Louis S. Dabo and Ignatius P. Mills, both of 22 Pine street, and Raphael Davis, 2 Rector street, all of New York. Location of principal office, New York. To manufacture rubber goods, etc.

The Stocker Rubber Co., July 25, 1912; under the laws of Ohio; authorized capital, $10,000. Incorporators: A. D. Stocker, Ira J. Cooper and H. H. Bunner. To repair, buy, sell and deal in rubber tires and rubber merchandise of all kinds.

Tredvent Tire Co., August 17, 1912; under the laws of New York; authorized capital, $100,000. Incorporators: Nathan A. and David A. Sterling, both of 126 West One Hundred and Twelfth street, New York, and Samuel Bing, 1451 Eastern Parkway, Brooklyn, New York.

TRADE NOTES.

For 31 years it has been the custom of The B. F. Goodrich Co. to provide an outing for its employes on the first Saturday of August. This year it was found impossible to obtain anything like adequate space or facilities in the vicinity of Akron for the usual entertainment of the 15,000 employes of the combined companies. Consequently the regular procedure was changed this year into a general holiday for the employes of the Goodrich-Diamond companies, each of whom was given an envelope containing a dollar, with the privilege of enjoying the day in accordance with individual taste.

The Turner, Vaughn & Taylor Co., Cuyahoga Falls, are installing a complete equipment of wire-drawing machinery in the plant of the National India Rubber Co., Bristol, Rhode Island. The company first named has been making a rubber washer of recognized standard for many years and has now entered upon the manufacture of a general line of rubber machinery.

Holders of the $1,816,000 outstanding 4 per cent. bonds and of the $250,000 "purchase bonds" of the Tehuantepec Rubber Culture Co. have organized a protective committee to look after their interests. It consists of Victor Tyler, Louis Kunz, H. M. Barfield and J. M. Kirby.

The Miner Rubber Co., Limited, of Granby, Quebec, is putting the Foster non-slip friction-plug heel on all its solid heel shoes; such as its lumbermen's line.

The Miller Rubber Co., of Akron, Ohio, has received a permit for the construction of a new building to be made of brick and steel, and to be used as a mixing room.

The United States Rubber Co.'s subscription receipts full paid, for first preferred stock have been listed on the New York Stock Exchange.

CAPTAIN APPLETON AND THE ANCIENTS.

The August number of THE INDIA RUBBER WORLD contained a mention of the fact that on July 15 a detachment of fifty members of the Ancient and Honorable Artillery Company of Boston, under the command of Captain Francis H. Appleton had been received by King George, and reviewed on the Buckingham Palace grounds and that the company had been photographed with Captain Appleton between the King and Ambassador Whitelaw Reid.

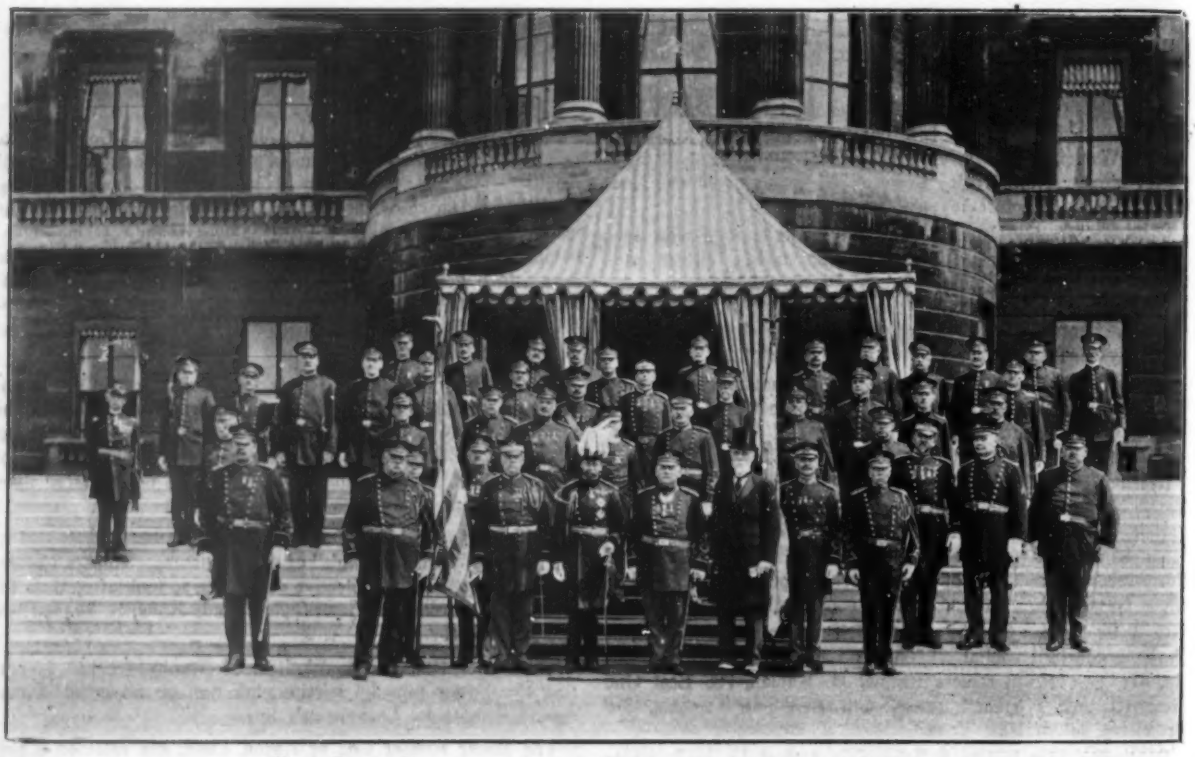
Here is a reproduction of the famous photograph showing the Captain, the King and the Ambassador, with the other members of the famous Boston company grouped around them. No member of the detachment that visited London will ever forget that occasion. They were there six days, and they were six days full of official and social activity.

On the night of the day on which they reached London, the Honourable Artillery Company of London gave them a dinner in the old historic Armoury House. The Earl of Denbigh, in command of the London Company, acted as chairman and delivered a wonderful address of welcome—full of wit and humor and good-fellowship. But Captain Appleton did not suffer at all by comparison when he arose to respond. His speech was constantly applauded—and particularly the following sentiments:

"We have, therefore, so much in common that it was inevitable that we should come to be close friends, and we of the Massachusetts Corps treasure the greeting of your late lamented King, who, as Prince of Wales, said at Marlborough House: 'We have received you not as foreigners, but as those belonging to ourselves.' It is my earnest wish that this spirit of comradeship may always endure, and that the red cross of St. George and our own starry banner (applause), may ever be flying together to the breezes of heaven as the symbols of justice and might, and the tokens of an everlasting friendship."

On the occasion of the reception of the Boston company at Buckingham Palace, when the King reviewed the visitors on the parade grounds, he was exceedingly cordial, as may be judged from a few sentences taken from his address: "Last year I had the pleasure of seeing Captain Appleton, when he came as one of the representatives of the corps, to announce my election as Honourary Member in succession to King Edward VII. Today I welcome him and you, the representatives of the ancient

CAPT. FRANCIS H. APPLETON.



KING GEORGE V. AND THE BOSTON ANCIENTS AT BUCKINGHAM PALACE.

and distinguished corps, which in 1896 sent a delegation to this country, and seven years later extended such unbounded hospitality to the Honourable Artillery Company on the occasion of their memorable visit to Boston."

The Massachusetts warriors made such an impression in London and on the Continent, and so much was said about them that, when they returned to their home city, early in August, the entire population of Boston turned out and received them like victors home from a triumphant tour of conquest.

PERSONAL MENTION.

Walter Fischer, M. A., formerly with the United States Department of Agriculture, and more recently Director of the Pará Agricultural Experiment Station, is now visiting the United States, his address being Vienna, Virginia. He has acted as consulting expert and technical adviser for many rubber and other plantations in North Brazil, and is considered an authority on plantation matters in that part of the world.

Speculation is already rife regarding the selection of a United States senator from Rhode Island, to succeed Senator Wetmore, who will retire at the end of his present term. Judge Le Baron Colt, brother of Colonel S. P. Colt, president of the United States Rubber Co., is most prominently mentioned for that position.

F. O. Nelson, manager of the Los Angeles branch of the Diamond Rubber Co., of New York, has resigned after eleven years of service with the company to enter business for himself. W. J. Colt, manager of the Diamond Spokane branch, has been given charge of the Los Angeles branch, which is now one of the largest Diamond branches in the west.

A. H. Marks, the vice-president of The B. F. Goodrich Co., Akron, Ohio, recently underwent an operation for appendicitis at a hospital in Cleveland. The operation was eminently successful, and Mr. Marks' recovery very rapid.

Miss Helen Roebling, daughter of Charles A. Roebling, of the John A. Roebling's Sons Co., Trenton, New Jersey, will be married on October 16, to Carroll Sergeant Tyson, of Philadelphia.

RUBBER MEN ON THEIR VACATION.

The various officials connected with the United States Rubber Co. devoted most of August to purposes of relaxation, and some of them have not yet returned to the grind of office cares.

Col. Samuel P. Colt, president of the company, is expected home from Europe on September 3.

Samuel Norris, the secretary, sailed on August 17 for a European trip.

H. E. Sawyer, the general manager, spent his vacation, as usual, at Bretton Woods, in the White Mountains.

E. R. Rice, the manager of sales, has been in Europe for a number of weeks, and is not expected home until the 23rd of September.

H. B. Hubbard, the auditor, devoted the first three weeks of August to touring in his new car through interesting parts of New England; and John D. Carberry, assistant secretary, spent the greater part of his vacation in the same way, covering points of interest in northern New York and Vermont.

James B. Ford, the treasurer and first vice-president, is cruising on his schooner yacht "Katrina" with a party of friends.

Lester Leland, second vice-president, has also taken to yachting and has spent most of the summer in a yacht which he chartered early in the season.

W. S. Ballou, a member of the executive committee and president of the Woonsocket Rubber Co., has rusticated chiefly among the New England mountains.

TRADE NEWS NOTES.

The directors of the Boston Woven Hose & Rubber Co. have declared a quarterly dividend of two dollars and a half ($2.50) per share on the common stock, payable September 16, 1912, to stockholders of record September 5, 1912.

The Firestone Tire & Rubber Co. has opened a branch at Bedford Avenue and Hancock Street, Brooklyn, New York, with W. G. Bedford, as manager.

The Swinehart Rubber Co., Akron, Ohio, has declared a quarterly dividend of 1½ per cent. on its capital stock. This is a reduction of ½ per cent. for the quarter, the rate being reduced from 8 per cent. to 6 per cent. per annum.

The Household Rubber Co. store in Youngstown, Ohio, has been purchased by the Auto & Cycle Supply Co.

The Indianapolis Fire Department is using, on its hook and ladder trucks some of the large sized "Nobby tread" tires 8 x 38, made by the United States Tire Co. A number of the sightseeing wagons in the large eastern cities are also using these tires.

The Walpole Rubber Co., which has recently started to operate a second plant at Foxboro, Massachusetts, has purchased 18 acres of land not far from the factory, on which the company intends to build homes for its employes.

The general executive offices of the United States Rubber Company have been moved to the company's new building at 1784 Broadway, at the corner of Fifty-eighth street, but the transfer offices will remain for the present at 42 Broadway.

The Fisk Rubber Co. has notified its employes that it has provided for accidents to employes as required under a recent amendment to the Massachusetts law. The notice is as follows: "All persons under contract or hire with the Fisk Rubber Co. are hereby notified that the Fisk Rubber Co. has provided for payment to injured employes of the compensation provided for by Chapter 751 of the Acts of 1911, and all acts in addition thereto and amendments thereof."

The well-known tire men, H. E. Field, president of the Thomas B. Jeffery Co., and C. F. U. Kelly, have joined to form a new company called the Kelly-Field Co., which will handle the output of tires manufactured by the Lee Tire and Rubber Co., Conshohocken, Pennsylvania. The company has opened a New York office in the Buick Building, 1737 Broadway.

The Tanney Rubber Co., 111 West Seventeenth street, New York, is engaged in the manufacture of raincoats, and rubber goods for plumbers.

WHERE "ALBA" WHITING EXCELS.

The Industrial Chemical Co., 200 Fifth avenue, New York, has been very successful with its "Alba" whiting, as it is now used by some of the largest rubber companies in the country. This whiting has three distinguishing qualities—its superior whiteness, its exceptional fineness, and the fact that it is neutral, and is so guaranteed by the company. Because of its unusual whiteness it is used by some manufacturers as a substitute for expensive zinc in the making of white tubing, jar rings and other white goods. The same company sells a lamp black which tests as high as 97 per cent. in carbon.

BISULPHIDE OF CARBON FROM EUROPE.

Owing to the fact that bisulphide of carbon is exceedingly inflammable, it was not possible, up to quite recently, to get a freight rate on it; but Mr. Bamberger, American manager for Meyer Cohn, of Hanover, Germany, announces that he is now in a position to import this product. As this article is quite scarce in this country many rubber manufacturers will doubtless be glad to get this information.

ALFRED A. ANDREWS.

The death of Alfred Augustus Andrews, president of the Winnipeg Rubber Co., and prominent in Winnipeg business and social circles, occurred August 2 at Chicago, where he had undergone an operation on the mastoid gland. Mr. Andrews was born at North Augusta, Ontario, 47 years ago. He went to Winnipeg in 1880.

TRADE NEWS NOTES.

The James Manufacturing Co., Cleveland, Ohio, producers of the "Gyro" Heel, have recently reorganized, resulting in substantially increased facilities. The offices of the company are located in the Rockefeller Building.

W. G. Brown, distributor of rubber manufacturers' supplies, with headquarters in the Provident Bank Building, Cincinnati, Ohio, is extensively interested in philanthropic work, and, in his capacity as buyer for the Santa Claus Committee, has already laid in a large supply of toys, to be distributed among poor children at Christmas time.

The Portage Rubber Co., Barberton, Ohio, will immediately commence building an addition to its present factory, the output of which now exceeds existing facilities.

The Raven Mining Co., Chicago, is in process of increasing its shipping facilities, and Lawrence F. Lindley, manager of the company, is now in Utah, where the mines are located, looking over the situation.

B. B. Felix, of the Featheredge Rubber Sponge Co., of Chicago, gave a small and very charming dinner to a few friends at the Bismarck Gardens on the evening of Wednesday, the 14th of August. It was a most delightful affair.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending August 24:

COMMON STOCK, $25,000,000.

[The treasury of a subsidiary company holds $1,334,000.]

Last Dividend (special), July 31, 1912—1%.

Week August 3	Sales	8,000	shares	High	53¼	Low	52
Week August 10	Sales	1,300	shares	High	52½	Low	51¼
Week August 17	Sales	3,600	shares	High	53	Low	51⅞
Week August 24	Sales	1,590	shares	High	51⅞	Low	51⅛

For the year—High, 67⅞, May 21; Low, 45¼, February 1.
Last year—High, 48½; Low, 30½.

FIRST PREFERRED STOCK, $39,824,400.

Last Dividend, July 31, 1912—2%.

Week August 3	Sales	3,919	shares	High	108½	Low	106
Week August 10	Sales	3,100	shares	High	108½	Low	107⅝
Week August 17	Sales	2,050	shares	High	108⅞	Low	108½
Week August 24	Sales	845	shares	High	108¾	Low	108⅝

For the year—High, 116, May 20; Low, 105¾, July 25.
Last year—High, 115½; Low, 104.

SECOND PREFERRED STOCK, $9,965,000.

Last Dividend, July 31, 1912—1¼%.

Week August 3	Sales	——	shares	High	——	Low	——
Week August 10	Sales	——	shares	High	——	Low	——
Week August 17	Sales	315	shares	High	80	Low	78½
Week August 24	Sales	200	shares	High	79	Low	78½

For the year—High, 85½, May 21; Low, 75, January 23.
Last year—High, 79; Low, 66.

SIX PER CENT. TRUST GOLD BONDS, $18,000,000.

Outstanding of the 1908 issue of $20,000,000.

Week August 3	Sales	42	bonds	High	104¼	Low	104
Week August 10	Sales	11,000	bonds	High	104¼	Low	104⅛
Week August 17	Sales	42	bonds	High	104¼	Low	104⅛
Week August 24	Sales	——	bonds	High	——	Low	——

For the year—High, 105, February 24; Low, 103¾, January 6.
Last year—High, 105; Low, 101¾.

RIGHTS.

Week August 3	Sales	160	Rights	High	5/8	Low	5/8
Week August 10	Sales	800	Rights	High	¾	Low	¾
Week August 17	Sales	——	Rights	High	——	Low	——
Week August 24	Sales	——	Rights	High	——	Low	——

For the year—High, ¾, August 10; Low, 7/16, July 26.

An American Consul reports (No. 9186) that a business firm in his district in Europe is desirous of securing offers from manufacturers of hard rubber. The firm uses a large quantity of this material for making fountain pens.

TRADE NOTES.

A special meeting of the stockholders of the Goodyear Tire and Rubber Co. will be held September 9 to vote on proposed changes in the company's constitution relative to its preferred stock issue, including the annual retirement after 1915.

The Lee Tire and Rubber Co., of Conshohocken, Pennsylvania, has filed notice of increase of its capital from $1,200,000 to $1,600,000 for the purpose of extending the company's business.

The manufacturers Rubber Co., of Philadelphia, Pennsylvania, has declared a regular quarterly dividend of 1½ per cent. on the preferred stock, payable August 31 to stock of record August 24.

The work of drawing copper wire in the new wire plant at the factory of the National India Rubber Co. was begun August 21. It is expected that the manufacture of wire will later require an increased force of workers.

The Majestic Rubber Co., Akron, Ohio, has recently been incorporated for the purpose of manufacturing, buying and selling rubber sundries and specialties. Among their specialties are finger cots and toe cots.

The Automatic Coupler Co., recently organized in Buffalo, New York, will manufacture and sell the Hall Automatic Couplers for fire and garden hose, and any other sort of hose where couplers are used. The company expects to build and equip its own factory in the near future.

Alexander H. Kasner is president of the A. H. Kasner Tire Co., recently incorporated to deal in automobile tires, with an office at 111 Chambers street, New York.

The Indiana Rubber and Insulated Wire Co., Jonesboro, Indiana, is manufacturing three styles of automobile-tire casings, namely, the "Wabash," a plain tread, guaranteed for 2,000 miles; the "Indiana," also a plain tread with a 3,500-mile guarantee, and a Traction Tread, non-skid tire, guaranteed for 3,500 miles.

The Selbach Rubber Co., a Massachusetts corporation, manufacturing rubber tires at 404 Columbus avenue, Boston, assigned August 6 to its treasurer, D. B. Smith, and Walter Powers, of Cambridge.

The Kleinert Rubber Co. will increase its plant in Long Island by the erection of a brick addition at Eighteenth street, at the corner of Fifth avenue, College Point.

VEREIN DEUTSCHER CHEMIKER.

The New York section of the Verein Deutscher Chemiker intends to celebrate the 25th anniversary of the parent society on Monday, September 2, next. At ten o'clock in the morning a business meeting with lectures will be held at Havemeyer Hall, Columbia University, New York. The lectures will be delivered by Dr. F. W. Frerichs and Dr. F. Raschig. At one p. m. there will be a lunch at the Claremont, and in the evening the ladies of the party will attend the theater and later a collation at the Ritz-Carlton, while the men will attend a Kommers at the building of the Arion Society, Fifty-ninth street and Park avenue.

A business man in a Mediterranean country informs an American consulate (Consular Report, No. 9319) that he desires to be placed in communication with American shippers of asbestos. He is particularly anxious to secure the kind and quality used in stereotyping.

According to Consular Report No. 8947, a business man in a European country desires to be put in communication with American manufacturers of rubberoid with a view to representing them locally. He is of the opinion that it could be largely introduced for roofing and bath-room flooring.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED JULY 2, 1912.

NO. 1,030,861. Foot and ankle brace. F. R. Anderson, Providence, R. I.

1,030,893. Elastic fabric. W. Kops, New York.

1,030,895. Elastic fabric. W. Kops, New York.

1,030,952. Art of boot and shoe making. F. W. Ward, South Framingham, Mass., assignor to United Shoe Machinery Co., Paterson, N. J.

1,031,007. Siphon. E. M. Johnson, Jersey City, N. J.

1,031,116. Toy. R. H. Hazard, Washington, D. C.

1,031,174. Wheel. S. C. Fregoso, Helensburgh, Scotland.

1,031,176. Combined nozzle sprayer and sprinkler. A. D. Gilpin, Lincoln, Kan.

1,031,182. Safety unwinder and automatic cutting device. F. S. Hoag, Kinderhook, N. Y.

1,031,235. Automobile wheel rim. P. B. Bosworth, assignor to The Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,031,236. Vehicle wheel rim. P. B. Bosworth, assignor to The Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,031,259. Demountable rim for automobile or other wheels. M. Halfpenny, Pontiac, Mich.

1,031,291. Pressure governor. G. M. Richards, assignor to M. A. Richards —both of Erie, Pa.

1,031,307. Adjustable veil. L. J. Wolfe, Waltham, Mass.

1,031,320. Projectile. J. H. Brown, West Hoboken, N. J.

1,031,341. Vehicle wheel. W. L. Howard, Trenton, N. J.

1,031,436. Spring tire. T. G. Russell, Lyndhurst, England.

1,031,446. Bottle stopper. K. H. Hoffman, Winthrop, Md.

1,031,465. Sheet carrier for printing presses. A. L. Peno, Chicago, Ill.

1,031,469. Tire shoe support. H. W. Roberts, Allentown, Pa.

1,031,491. Tire wrapping and unwrapping machine. J. W. Thropp, Trenton, N. J.

1,031,523. Tire. Kelley Chambers, Elkmont Springs, Tenn.

1,031,530. Spring tire for vehicle wheels. M. E. Courtney, Fair Play, Mo.

1,031,533. Dental appliance. W. F. Davison, Richmond, Va.

1,031,613. Process for producing coats. F. A. Antoni, Cologne, Germany, assignor to J. Wahlen, Cologne-Ehrenfeld, Germany.

1,031,661. Retaining device for printing surfaces. H. C. Osborn, assignor to The American Multigraph Co.—both of Cleveland, Ohio.

1,031,671. Core for resilient objects. W. Barbour, Glasgow, Scotland.

Trade Marks.

57,326. The Republic Rubber Co., Youngstown, Ohio. Portion of tire with representations of doves. For pneumatic tires.

63,567. The American Steel & Wire Co. of New Jersey, Hoboken, N. J. The word *Americore*. For rubber covered wire.

ISSUED JULY 9, 1912.

1,031,685. Pneumatic tire. W. H. Burritt, St. Louis, Mo.

1,031,687. Spring wheel. W. N. Carroll and J. C. Griffin, Nashville, Tenn.

1,031,720. Nursing bottle nipple. B. S. Lacy, Dubuque, Iowa.

1,031,763. Wheel for motor vehicles. F. O. Woodland, Worcester, Mass.

1,031,856. Tire. F. G. Kollenberg, assignor to E. Little—both of Owensboro, Ky.

1,031,979. Tire. J. A. Bowden, Los Angeles, Cal.

1,031,983. Core for manufacturing pneumatic tire shoes. W. T. Childs, assignor of one-half to F. Nolte and one-half to M. D. Kuhlke—all of Akron, Ohio.

1,032,125. Vehicle wheel. F. D. Dorsey, New York, assignor to Amos Woeber, Davenport, Iowa.

1,032,273. Weather strip. W. Butler, Avard, Okla.

1,032,286. Wheel rim. C. F. Jenkins, Washington, D. C.

Design.

42,772. Elastic tire for vehicles. W. F. Pfeiffer, assignor to The Miller Rubber Co.—both of Akron, Ohio.

Trade Mark.

63,443. Electric Hose & Rubber Co., Wilmington, Del. The word *Supero*. For rubber hose.

ISSUED JULY 16, 1912.

1,032,428. Process for the industrial manufacture of artificial rubber. G. Reynaud, Paris, France.

1,032,518. Nipple shield. E. P. Thieringer, New York.

1,032,519. Hose coupling. J. M. Towne, East Orange, assignor to The Safety Car Heating & Lighting Co.—both of New Jersey.

1,032,544. Vehicle tire. L. R. R. Hess, Joliet, and A. S. Burdick, Lockport, Ill., assignors to S. J. Drew, Joliet, Ill.

1,032,579. Vehicle tire. H. M. Ambler, Philadelphia, Pa.

1,032,626. Manufacture of rubber shoes, boots and the like. A. Schulze, assignor to J. C. Pennie—both of Washington, D. C.

1,032,640. Rubber sole for shoes and the like. F. Wette, Koblenz, Germany.

1,032,730. Elastic wheel. H. G. Baldwin, San Francisco, Cal.

1,032,732. Apparatus for separating particles of rubber from materials with which they are commingled. W. S. Blaine, Torreon, Mexico, assignor to Intercontinental Rubber Co., New York.

1,032,733. Method of separating particles of rubber from materials with which they are commingled. W. S. Blaine, Torreon, Mexico, assignor to Intercontinental Rubber Co., New York.

1,032,757. Dual tire for auto trucks. P. Jones, Metuchen, N. J.

1,032,761. Rubber packed pipe couplings. F. A. Miller, assignor to S. R. Dresser Mfg. Co.—both of Bradford, Pa.

1,032,955. Puncture proof inner casing for pneumatic tires. T. F. Shields and W. R. Bolter, Lowell, Mich.

1,032,977. Cushion tire. D. A. York, North Grove, Ind.

1,032,991. Tire. C. T. Coates, St. Louis, Mo.

1,032,010. Manufacture of pneumatic cushioning devices for the elastic suspension of road vehicles. L. Harris, London, England.

Trade Marks.

48,793. Vacumit-Gesellschaft M. B. H., Vienna, Austria. The word *Vacumit*. For a substitute for rubber.

56,042. The No-Air Tire Compound Co., Kansas City, Mo. Tire encircling the words The No-Air Tire Compound Co. For tire filling.

60,324. The Star Rubber Co., Akron, Ohio. The word *Nepto*. For rubber gloves and bath caps.

60,326. The Star Rubber Co., Akron, Ohio. The word *Luna*. For rubber gloves and bath caps.

60,328. The Star Rubber Co., Akron, Ohio. The word *Veno*. For rubber gloves and bath caps.

ISSUED JULY 23, 1912.

1,033,179. Process of producing piperylene. L. P. Kyriakides and R. B. Earle, assignors to Hood Rubber Co.—both of Boston, Mass.

1,033,180. Process of producing isoprene. L. P. Kyriakides and R. B. Earle, assignors to Hood Rubber Co.—both of Boston, Mass.

1,033,229. Tire for vehicles. J. P. Clare, Stratham, N. H.

1,033,230. Process of making tires for vehicles. J. P. Clare, Stratham, N. H.

1,033,315. Cushion shoe for horses. W. B. Harrell, Baldwin, Fla.

1,033,327. Process of producing erythrene. L. P. Kyriakides and R. B. Earle, assignors to Hood Rubber Co.—both of Boston, Mass.

1,033,328. Process of producing dimethyl-butadiene. L. P. Kyriakides and R. B. Earle, assignors to Hood Rubber Co.—both of Boston, Mass.

1,033,513. Vehicle tire. A. Aebli, Milwaukee, Wis.

1,033,635. Block tire. W. L. R. Sweeney, assignor to M. S. M. Sweeney —both of Spartanburg, S. C.

1,033,686. Detachable heel. G. Evans, Toronto, Ontario, Canada.

1,033,730. Self-sealing bottle stopper. W. G. Peacock, assignor to The Perfection Bottle Stopper Co.—both of Chicago, Ill.

1,033,741. Armored tread for pneumatic tires. B. Sims, Valley Spring, Texas.

Trade Mark.

60,712. The Star Rubber Co., Akron, Ohio. The word *Marco*. For water bottles, etc.

ISSUED JULY 30, 1912.

1,033,819. Dental syringe. G. M. McMann, Detroit, Mich.

1,033,944. Vehicle wheel. T. H. Rushton, Grimsby, England.

1,034,175. Shoe attachment. E. R. Carey and G. G. Condon, Denver, Col., assignors to Central Novelty Manufacturing Co., Chicago, Ill.

1,034,226. Garment supporter. T. N. Figuers, Jr., Columbia, Tenn.

1,034,372. Apparatus for making tires. C. H. Semple, Trenton, N. J.

1,034,305. Detachable rim for carriage wheels. L. J. C. G. Dehais, Paris, France.

Trade Mark.

63,505. Hood Rubber Co., Boston, Mass. Picture of boot top. For rubber boots, shoes, etc.

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1911.

**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 3, 1912.]

6,023. Air doors for mines. S. Griffiths, 24 John street, Treharris, Glamorganshire.

6,031. Surgical syringes. J. L. McLean, 11 Argyle Terrace, Edinburgh.

6,052. Protectors for exposed vehicle seats. J. W. Chapman, 24 Weymouth Dwellings, New Kent Road, and P. Wolstenholme, 41 Little Albany street, Regent's Park—both in London.

6,096. Self-filling pens. H. van der Weyde, 22 Temple Fortune Hill, Hampstead Garden Suburb, London.

6,126. Golf bags. G. Warnkess, 11 Dunlop street, Glasgow.

6,153. Propellers for aerial machines. E. von Bernd, Bergstrasse, Baden, near Vienna.

*6,156. Temperature alarms. A. Goldstein, 114 Liberty street, New York, U. S. A.

6,185. Artificial backings for furs and furriery. H. Marche, Fourmies, Nord, France.

6,233. Punctureless apparatus for closing tires. W. E. Sturgess, Narborough Road, Leicester.

6,269. Pneumatic apparatus for valves. A. Purser, 1 St. Mary's Place, Stamford, Lincolnshire.

6,282. Fire extinguishing. W. F. Cooper, Cooper Research Laboratories, Watford, Hertfordshire.

6,312. Dispensing liquids. M. F. D. M. Vigneron, Magnots-Moulins, Allier, France.

6,389. Spring wheels with rubber ring and like cushions. H. Lotte, 4 Rue Pascal Bourcy, St. Jean d'Angely, Charente Inferieure, France.

6,405. Washing plates, dishes, etc. F. Staines, 38 Buckingham Palace Road, London.

6,415. Thermostats. Soc. Francaise des Wagons Aerothermiques, 20 Rue du Pont Neuf, Paris.

6,429. Phenol-formaldehyde condensation products. Knoll & Co., Ludwigshafen-on-Rhine, Germany.

6,430. Phenol-formaldehyde condensation products. Knoll & Co., Ludwigshafen-on-Rhine, Germany.

6,444. Purifying india rubber. A. Schleiffer, 10 Fichtegasse, Vienna.

6,484. Squeegees, etc. J. H. Goudoever, 31 Clifton street, Hulme Hall Lane, Manchester.

6,540. Synthetic caoutchouc. Farbenfabriken Vorm. F. Bayer & Co., 217 Koenigstrasse, Elberfeld, Germany.

6,541. Gas tubes. F. H. Rogers, Broad Sanctuary Chambers, Westminster.

6,572. Vacuum cleaning apparatus. B. H. Webb, 82 Mill street—both in Kidderminster.

6,585. Vehicle wheels. T. Dunn, 56 Moorgate street, London.

6,603. Balls. H. G. Poole, 53 Kent Road, Gravesend, Kent, and others.

6,635. Rubber springs for aeroplanes. H. A. A. J. Lelarge, 7 Avenue de Trivaux, Chalais-Meudon, Seine-et-Oise, France.

6,638. Undergarments. J. Elkan, 21 Addle street, Wood street, London, E. C.

6,639. Jackets and covers for tires. E. H. Jones, 314 Euston Road, London.

6,642. Synthetic caoutchouc. Farbenfabriken vorm. F. Bayer & Co., 217 Koenigstrasse, Elberfeld, Germany.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 10, 1912.]

*6,793. Buoyant wearing apparel. R. L. F. Berry, Miller Place, New York, U. S. A.

6,842. Vehicle wheels. J. McLeod, 366 High street, St. Kilda, Victoria, Australia.

6,848. Cow milkers. E. A. Dehmer, Villa Annero, Grondal, Liljeholmen, near Stockholm, and A. E. Nordenlund, 48 Handtverkaregaten, Stockholm.

6,858. Coagulation of india rubber. R. Derry, Botanic Gardens, Singapore.

6,876. Submarine signals. A. Whalley, 19 Croxteth Grove, Liverpool.

6,929. Safety suspending apparatus for mine. F. W. Bentley, Box 4648, Johannesburg, Transvaal, and K. Kapernick, 28 Mittelstrasse, Rathenow, Germany.

6,962. Cream separators. G. F. Strawson, 57 Holborn Viaduct, London.

*6,966. Ships. A. W. and H. H. Theilsiefje, Ridgefield, Washington, U. S. A.

*6,970. Pen extractors; erasers. F. H. Lamoreux, Smithshire, Ill., U. S. A.

7,005. Vehicle wheels. J. O. Comrie, 686 Garscube Road, Glasgow.

7,011. Pants. E. Hayes, and Walker, Cliffe & Hayes, 22 High street, Manchester.

*7,046. Rubber covered chair hooks. J. E. Wallace, H. J. Humphreys and I. R. Landis, Los Angeles, Cal., U. S. A.

7,055. Sealing punctures in tires, etc. H. A. Wanklyn, 17 Manchester avenue, London.

7,062. Electrically propelled vehicles. D. Balachowsky and P. Caire, 64 Rue de la Chaussee d'Antin, Paris.

*7,078. Veterinary syringes, etc. J. F. Kellogg, 118 N. First street, Guthrie, Okla., U. S. A.

7,121. Bats, etc. O. Mettam and A. E. Lewis, The Bridge, Taunton, Somerset.

7,179. Repairing tires. F. H. Hall, Gannaway Gate, Norton Lindsey, Warwickshire.

7,215. Capsuling bottles. M. Lumley, 1 America Square, Minories, London.

7,230. Tire inflating valves. F. G. Tooth, The Lodge, Browsholme, Haselmere.

7,311. Automatic musical instruments. W. D. Wood, 50a Wigmore street, London.

7,314. Treating house refuse. G. Mayer-Dinkel, 9 Luisenring, Mannheim, Germany.

7,324. Balls. A. E. Prosser, 548 Holloway Road, London.

7,328. Dispensing liquids. C. E. Buxton and D. Greenwood, The Old Brewery, Cardiff.

7,379. Surgical trusses. G. A. Goddon, 18 Rylett Crescent, Shepherd's Bush, London.

7,394. Recovering nitrogen. H. L. A. M. Watrigant, 48 Facade de l'Esplanade, Lille, France.

*7,396. Massage. E. J. McCarthy, 507 Fifth avenue, New York, U. S. A.

7,399. Air and like compressors. Harle et Cie, 26 Avenue de Suffren, Paris.

7,420. Side cars for motorcycles, etc. H. Holt, 68a Regent street, Leamington Spa.

7,426. Wheel tires. T. H. B. Gayner, 113 Neville street, Middle Park, South Melbourne, Australia.

7,438. Tread bands. W. Haseloff, Steinau, Germany.

7,439. Cleaning tubes, etc. A. Willis, 135 Brixton Hill, London.

7,443. Tread bands. L. Courouble, 40 Rue Faidherbe, Lille, France.

7,450. Tongue depressers. J. G. Macpherson, The Cottage Stornoway, Ross and Cromarty.

7,496. Tire inflating and like valves. G. R. Sanderson, 6 Fisher street, Workington, Cumberland.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 17, 1912.]

7,511. Electric couplings; insulation. J. Krannichfeldt, 1 Lochnerstrasse, Cologne, Germany.

7,541. Wheel tires. S. E. Caddy, Rook Hill House, Keynsham, near Bristol.

7,548. Tread bands, projections and surfaces. G. W. Beldam, Boston Lodge, Windmill Road, Ealing, London.

7,549. Tire attachments to rims. C. Morel, Domene, Isere, France.

7,569. Current detectors. W. Frisby, 111 Winnock Road, Colchester.

7,618. Cow milkers. H. Droutlege, 47 Vermont street, Ponsonby, Auckland, New Zealand.

*7,660. Applying adhesive to sheets. A. Cohn and L. M. Kronheimer, New York, U. S. A.

7,667. Jackets and covers. H. Gundlach, 14 Moltkestrasse, Hagen, Westfalen, Germany.

7,679. Vehicle wheels. J. A. Ellis, Hatton, Warren Grange, Crowborough, Sussex.

7,687. Hats. E. Ashworth, Fernhill, Bury, Lancashire.

7,700. Wringing machines, etc. H. B. Miller, 31 Shaw street, and E. Bennett, 24 Percy street—both in Liverpool.

7,735. Filling compositions. R. J. Caldwell, Coventry House, Wilton avenue, Southampton, and Pneumatic, Ltd., 82 Victoria street, Westminster.

*7,741. Air compressors. P. A. Newton, 6 Breams Bldgs., Chancery Lane, London. (*Ingersoll Rand Co.*, 11 *Broadway, New York, U. S. A.*)

7,744. Spray producers. W. P. Harris, 179 Clarence Gate Gardens, Regent's Park, and H. S. Fox, 15 Wenlock Road, City Road—both in London.

7,809. Condensing; ejectors. D. B. Morison, Hartlepool Engine Works, Hartlepool.

7,828. Wheel tires. G. Desson, 4 Square Saint-Ferdinand, Paris.

7,856. A suction appliance for dental plates. W. H. Pope, 1 Rue du Cuvier, Poitiers, Vienne, France.

7,860. Surgical trusses. E. Dimant, Equitable Bldgs., Collins street, Melbourne, Australia.

7,904. Centrifugal separators. Markische Maschinenbau Anstalt Teutonia Ges, Frankfurt-on-Oder, Germany.

*7,907. Vehicle wheels. A. H. Peloubet, Newark, N. J., U. S. A.

7,930. Wheel tires. F. Milan, Hydro Works, Lockwood Road, Lockwood, Huddersfield, and F. M. R. James, Thornton Road, Bradford—both in Yorkshire.

7,979. Horses' nosebags. J. W. Maxwell, 85 St. George's avenue, Tufnell Park, London.

7,992. Calendering and like machines. G. Schnurmann, 27 Winkelsfelderstrasse, Dusseldorf, Germany.

8,026. Jackets and covers. R. D. Alder, 128 Branksome Road, Brixton Hill, and J. Gilles, 6 Margate Road, Brixton—both in London.

8,028. Jackets and covers. H. Penn, 9 Thomas street, Aston, Birmingham, and F. J. L. Widlake, 97 Abbey Road, St. John's Wood, London.

8,061. Surgical douches; injectors, etc. J. Haslam, 115 Ashton New Road, Beswick, Manchester.

8,095. India rubber machine. R. Bridge, Castleton Ironworks, Castleton, Lancashire.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 24, 1912.]

8,174. Jackets and covers. T. Caldwell, Penn street, Bolton.

8,184. Bandages, etc. B. Kurowski, 52 Posnerstrasse, Posen, Germany.

8,230. Horse shoes. M. Banatowski, Vienna.

8,298. Moulding india rubber, etc. T. Gare, 250 Bristol Road, Edgbaston, Birmingham.

8,319. Boots, etc. G. Evans, 2 Walton street, Toronto, Canada.

8,402. Salving sunken vessels. V. E. Centonze, 64 Via Santa Brigida, Naples, Italy.

8,413. Tire attachments to rims. C. Ransom, 11 Gassiot Road, Tooting, London.

8,454. Tread bands. T. P. Buckton, North Lea, Lightcliffe, and W. Beattie, 17 Waverley Terrace, Hipperholme—both near Halifax, Yorkshire.

8,464. Balls. P. A. Martin, Granville street, and J. Stanley, 137 Ivor Road, Sparkhill—both in Birmingham.

8,465. Wearing apparel. D. H. Shapiro, 177 Mount Royal avenue, West Montreal, Canada.

8,468. Preserving wood. K. Koenman, 28 Rue Wazon, Liege, Belgium.

8,494. Beer engines. J. R. Phillips, 128 Ilderton Road, South Bermondsey, London.

8,513. Vaporizing apparatus. Kitson Empire Lighting Co., Wharf Road, and A. Noblett, 21 Priory Road—both in Stamford, Lincolnshire.

8,532. Lamplighters' torches, etc. H. Schwabacher, 6 Broad street, Place, London, E. C.

8,557. Balls. A. C. B. Bell, 17 Lansdowne Crescent, Edinburgh.

8,628. Cricket bats. J. Murrell, 129 Hobmoor Road, Small Heath, Birmingham.

*8,653. Electric switches. F. W. Schmidt, 127 Edward street, Philadelphia, Pa., U. S. A.

8,682. Wheel tires. Dunlop Rubber Co. and J. V. Worthington, Manor Mills, Salford street, Aston, Birmingham.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL.]

8,723. Automatic musical instruments. M. M. Kastner and C. Katz, 34 Margaret street, Cavendish Square, London.

8,785. Boots. E. A. Lemoine, Le Coteau, Nord, France.

8,896. Wheel tires. Z. Olsson, 32 Great Peter street, Westminster.

8,983. Fastening wearing apparel. W. Corner, Grosvenor Factory, Blackfriars Road, Portsmouth.

*8,987. Softening rubber. F. W. Howard, 509 W. 161st street, New York, U. S. A.

9,018. Lamp supports. E. von Schipp, Neustadt, Oberschlesien, Germany.

9,045. Rubber substitutes. A. Sauer, Zwingerberg, Hessen, and F. Gossel, Stockheim, Oberhessen, Germany.

9,081. Surgical trusses. J. and W. Almond, 103 Friar street, St. Helens, Lancashire.

9,190. Generating smoke for treating india rubber, etc. G. W. Sutton, Crofton Cottage, Stevenage, Hertfordshire.

9,197. Treating rubber. C. J. Beaver, "Rangemoor," Crescent Road, Hale, Cheshire, and E. A. Claremont, Throstle Nest House, Old Trafford, near Manchester.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

438,061 (September 28, 1911). E. von Vargyas. Rubber substitute.

438,125 (December 7). A. Dechamp. Bandages for ruptures with hollow rubber balls, molded together with metallic plates, and with multiple branches.

438,137 (December 11). L. Norzagaray and the Economic Rubber Washing Machine Co., Limited. Machine for treating rubber.

438,275 (December 26). L. Basso. Improvements in anti-skid automobile and other tires.

438,294 (December 27). Madame R. Basch. Elastic vehicle tire.

438,497 (December 29). J. Thomann. Pneumatic tire.

438,535 (December 30). M. Trebing. Protective device for pneumatic tires.

438,638 (January 3, 1912). J. Musso. Elastic wheel.

438,648 (January 4). Currin and the Captain Rim Co., Limited. Improvements in movable rims for pneumatic tires.

438,778 (January 8). G. Eichelbaum. Process for improving the quality of rubber.

438,780 (January 8). A. Seelig. Elastic tires sliding between inner and outer rims.

438,825 (January 9). E. Clark. Cover for pneumatic tire.

438,843 (January 10). J. Mayer. Improvements in rubber heels.

438,872. (January 8). A. Brottes. Protection for pneumatic tires.

438,917 (January 10). J. M. Champon. Protection for pneumatic tires.

438,921 (January 12). B. Polack Co. Wheel with metal spokes, sectional rims and pneumatic tires.

438,929 (January 12). E. B. Killen. Improvements in rubber tires and in their attachment to wheels.

439,053 (January 17). C. F. Adamson. Device for vulcanizing cemented portions of rubber tires and similar objects.

439,101 (January 18). A. Heinemann. Improvements in preparation of synthetic rubber.

439,127 (January 19). H. Agha. Covers of pneumatic tires.

439,297 (April 3, 1911). G. J. Krol. Pneumatic tire.

439,298 (April 3). M. Bouchet. Elastic pneumatic tire.

439,408 (April 5). French Western Congo Company. Process for extraction of Ceara rubber.

439,454 (April 8). Vulcana Company. Process of repairing pneumatic tires.

439,382 (January 25, 1912). Michelin & Co. Movable anti-skid devices for tires.

439,480 (January 29). E. G. Verdon. New anti-skid protective device for twin solid tires for use in heavy vehicles.

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

249,583 (January 17, 1911). Pneumatic tire covers. Deutsche Dunlop Gummi-Kompagnie, a. G. Hanau a. M.

249,947 (December 30, 1910). Process for making carbo-hydrates for transformation into rubber or similar substances. Dr. Karl Gottlob, Elberfeld.

249,802 (December 25, 1909). Improvement of properties of rubber substances obtained from solutions. Dr. Paul Alexander, Charlottenburg.

249,868 (October 24, 1911). Process for production of rubber or similar substances. F. E. Matthews and E. H. Strange, London.

249,923. Endless belting made from woven fabric impregnated with balata. John B. Hay and John Stewart, Youngstown, Ohio.

250,115. Roller with zig-zag longitudinal ribs for rubber washing machines. Crude Rubber Washing Company, Limited, and M. M. Dessau, London.

250,215 (May 3, 1910). Machine for extraction of rubber from the bark of rubber bearing plants. Leopold Valour, Marchienne-au-Pont, Belgium.

250,245 (August 2, 1910). Manufacture of objects in any desired length from powdered rubber waste. Thomas Gare, New Brighton, Cheshire, England.

250,279 (December 25, 1910). Process for vulcanizing portions of rubber objects. Continental Caoutchouc & Gutta Percha Company, Hanover.

250,281 (August 6, 1910). Process for imparting elastic properties to the product of the solution of albumen in formic acid.

250,335 (December 28, 1909). Production of a substance resembling rubber. Farbenfabriken vorm. Fried. Bayer & Co., Elberfeld.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

THE following is an official statement of the value of exports of manufactures of india-rubber and gutta-percha from the United States, for ten fiscal years, ending June 30:

Years.	Belting, packing and hose.	Boots and shoes	All other rubber.	Total.
1911-12	$2,315,424	$1,502,890	$7,349,115	$11,167,229
1910-11	2,163,416	2,219,430	6,564,402	10,947,248
1909-10	1,960,825	1,984,739	5,115,331	9,060,895
1908-09	1,498,445	1,292,673	3,823,956	6,615,074
1907-08	1,347,775	1,614,290	3,743,040	6,705,105
1906-07	1,253,369	1,231,898	3,729,643	6,214,910
1905-06	1,221,159	1,505,082	2,966,144	5,692,385
1904-05	994,100	1,214,342	2,572,375	4,780,817
1903-04	879,476	1,086,364	2,469,750	4,435,590
1902-03	819,985	1,056,491	2,299,875	4,176,351

The above heading, "All Other Rubber," for the last two fiscal years includes the following details relating to Tires:

Years.	For Automobiles.	All Other.	Total.
1911-12	$2,657,809	$546,833	$3,204,642
1910-11	2,085,107	592,470	2,677,577

Exports of rubber boots and shoes (in pairs) have been as follows, by fiscal years ending June 30:

Years.	Pairs.	Years.	Pairs.
1911-12	2,545,076	1906-07	2,310,420
1910-11	3,984,332	1905-06	2,693,670
1909-10	3,791,084	1906-05	2,390,539
1908-09	2,396,435	1903-04	2,310,808
1907-08	3,080,253	1902-03	2,307,401

Exports (in value) of reclaimed rubber and of waste rubber have been as follows:

Years.	Reclaimed.	Waste.
1911-12	$875,501	$780,188
1910-11	781,650	723,664
1909-10	535,795	578,944
1908-09	414,861	402,997
1907-08	418,738	449,727
1906-07	665,109	548,695
1905-06	511,843	339,507
1904-05	522,902	204,945

Imports into the United States of manufactures of india-rubber and gutta-percha, elasticon and similar substitutes:

Years.	India-rubber.	Gutta-percha.	Elasticon, etc.	Total.
1911-12	$874,736	$41,098	$87,328	$1,003,162
1910-11	875,125	61,283	.....	936,408
1909-10	1,154,347	80,567	.....	1,234,914
1908-09	1,391,770	71,819	.....	1,463,589
1907-08	1,956,590	93,545	.....	2,050,135
1906-07	2,262,783	191,064	.....	2,453,847
1905-06	1,992,413	208,172	.....	2,200,585
1904-05	1,389,064	117,735	.....	1,506,799
1903-04	821,562	335,480	.....	1,157,042
1902-03	665,972	225,198	.....	891,170

GREAT BRITAIN AND IRELAND.

OFFICIAL statement of exports of manufactures of india-rubber for the first six months of three years:

	1910.	1911.	1912.
Boots and shoes	£86,988	£69,376	£61,721
All others	897,199	961,804	891,954
Total value	£984,187	£1,031,180	£953,675
In U. S. money	$4,789,546	$5,018,237	$4,641,059

Value of "Apparel" waterproofed by any process—first six months of the year: In 1910, £221,370; in 1911, £302,059, and in 1912, £368,624.

Exports of rubber footwear amounted to 83,106 dozen pairs in 1910; 66,521 dozen pairs in 1911, and 57,588 dozen pairs in 1912.

Review of the Crude Rubber Market.

THE prominent feature of the London market during August has been the maintenance of price during most of the time, above the 5 shilling mark, showing a gain of 2d. for the month which has elapsed since last report. The price of fine Pará on July 26 was 4s. 11¾d., and on August 26, at time of writing, 5s. 1¾d., a slight reaction being thus manifested upon the figure of 5s. 2d., which had been reached on August 21.

During the latter days of July, the continued operations of speculators and dealers kept the market fairly steady, at a slight falling off from the price of 4s. 11¾d., at which it stood on July 26. These conditions prevailed until August 8, when the price of 5s. was attained. During the next fortnight it ranged between 5s. and 5s. 1d., rising to 5s. 2d. on August 21, which level has since been practically maintained.

Taking the average price of each month this year, the result shown is: January, 4s. 6d.; February, 4s. 7d.; March, 4s. 10d.; April, 4s. 10¼d.; May, 4s. 7½d.; June, 4s. 9d.; July, 4s. 9½d. The overhead average for the year would thus be about 4s. 8½d., while the average for August alone was 5s. 0½d.; the high level of price now attained being thus illustrated. As shown in another column, Pará rubber stands about 3d. above price of standard plantation rubber; opinions differing as to the cause of this situation.

At the plantation rubber auctions held in London, July 30 and 31, 620 tons were offered, of which 400 tons were sold. Prices on the first day were 2d. to 3d. below the rates of a fortnight earlier. This fall in price stimulated demand, so that there was a recovery in values on the second day to the extent of fully 1d. Fine pale crepe was quoted at 4s. 10d.

The first August series of auctions on August 13 comprised 800 tons, of which 550 tons were sold at prices but slightly varying from those of the previous sale. Fine pale crepe brought 4s. 9¼d.

On August 27 commenced the second August series of London auctions; including 725 tons; of which 579 tons were sold at practically unchanged prices, fine pale crepe reaching 4s. 10d.

At the Antwerp sale of July 24 there was a very satisfactory demand, orders coming in from all quarters, and a good many wants being unfilled. Out of 250 tons Congo offered, 172 tons were sold at an average advance equaling 1¾d. per pound. There was strong competition for the plantation grades. Out of the 100 tons offered, 90 tons were sold at an advance which represented 2⅛d. per pound. The next sale was scheduled for August 21 and was expected to include 335 tons, of which 50 were good plantation grades.

Receipts of all classes of rubber at Antwerp were 2,475 tons for the seven months ending July, sales having been 2,715 tons; the figures for the corresponding period of 1911 having been 2,484 tons and 2,606 tons.

The Havre sale of July 25 did not result as favorably as had been hoped, the advance in Pará on the London market not being reflected in the action of buyers. Demand was good, but sellers were not disposed to meet the views of buyers. Under these circumstances only 25 tons were sold out of the 97 tons offered. The next sale was announced to take place on August 28, when 100 tons were to be offered, principally Congos.

On July 19 the sale at Amsterdam included only 22½ tons, as compared with the 47½ tons of June 21. The quantity scheduled for sale on August 18 was 37 tons, which was chiefly sold at good prices. At the Rotterdam sale of August 9 about 20 tons were offered and mostly sold.

Trading in New York followed the tendency of European advices, closing on the 28th quiet but steady.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago, August 27—the current date:

PARA.	Sept. 1,'11.	Aug. 1,'12.	Aug. 27,'12.
Islands, fine, new	108@109	107@108	112@113
Islands, fine, old	110@111	109@110	.....
Upriver, fine, new	117@118	117@118	122@123
Upriver, fine, old	119@120	122@123	124@125
Islands, coarse, new	62@ 63	56@ 57	58@ 59
Islands, coarse, old	.....	.....	.....
Upriver, coarse, new	97@ 98	90@ 91	96@ 97
Upriver, coarse, old	98@ 99	.....	.....
Cametá	67@ 68	65@ 66	67@ 68
Caucho (Peruvian) ball	96@ 97	88@ 89	92@ 93
Caucho (Peruvian) sheet	.....	76@ 77	80@ 81
PLANTATION PARA.			
Fine smoked sheet	138@139	120@121	121@122
Fine pale crepe	136@137	121@122	120@121
Fine sheets and biscuits	130@131	117@118	117@118
CENTRALS.			
Esmeralda, sausage	86@ 87	83@ 84	85@ 86
Guayaquil, strip	.....	.....	.....
Nicaragua, scrap	84@ 85	81@ 82	84@ 85
Panama	.....	.....	.....
Mexican plantation, sheet	.....	.....	93@ 94
Mexican scrap	83@ 84	81@ 82	84@ 85
Mexican, slab	.....	.....	.....
Mangabeira, sheet	.....	.....	.....
Guayule	45@ 46	57@...	57@ 58
Balata, sheet	84@ 85	.....	88@ 89
Balata, block	63@ 64	.....	60@ 61
AFRICAN.			
Lopori, ball, prime	110@112	108@109	none here
Lopori, strip, prime	none here	none here	none here
Aruwimi	102@104	103@104	104@105
Upper Congo, ball, red	110@112	105@106	107@108
Ikelemba	none here	none here	none here
Sierra Leone, 1st quality	92@ 93	95@ 96	100@101
Massai, red	93@ 94	98@ 99	102@103
Soudan, Niggers	none here	none here	none here
Cameroon, ball	70@ 71	none here	none here
Benguela	none here	none here	none here
Madagascar, pinky	83@ 84	none here	none here
Accra, flake	30@ 31	27@...	26@ 27
EAST INDIAN.			
Assam	84@ 85	none here	none here
Pontianak	6⅛@6¼	6@6⅛	6¼@6⅜
Borneo	none here	none here	none here

Late Pará cables quote:

Per Kilo.		Per Kilo.
Islands, fine 5$000	Upriver, fine	——
Islands, coarse 2$325	Upriver, coarse	——
	Exchange	16 2/32d.

Latest Manáos advices:

Upriver, fine 6$450	Exchange 16 3/16d.
Upriver, coarse 4$450	

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows:

"During August the demand for paper has continued fairly good from out-of-town banks, but at higher rates, 5¼@5½ per cent. for the best rubber names, and 5¾@6 per cent. for those not so well known. Our city banks have been mostly out of the market."

NEW YORK PRICES FOR JULY (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine	$1.10@1.19	$ .99@1.17	$2.16@2.40
Upriver, course	.85@ .91	.82@ .96	1.48@1.55
Islands, fine	1.00@1.08	.92@1.10	2.08@2.25
Cametá	.62@ .65	.70@ .75	1.10@1.23

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium.	Coarse.		Total, 1912.	Total, 1911.	Total, 1910.
Stocks, June 30.....*tons*	153	23	=	176	373	161
Arrivals, July	705	393	=	1,098	1,162	642
Aggregating	858.	416	=	1,274	1,535	803
Deliveries, July	780	387	=	1,167	1,150	594
Stocks July 31.....	78	29	=	107	385	209

	PARA.			ENGLAND.		
	1912.	1911.	1910.	1912.	1911.	1910.
Stocks, June 30..*tons*	2,685	3,785	300	690	1,775	1,460
Arrivals, July	1,320	1,150	1,500	687	72	680
Aggregating	4,005	4,935	1,800	1,377	1,847	2,140
Deliveries, July.....	1,705	1,485	1,315	727	447	1,000
Stocks, July 31..	2,300	3,450	485	650	1,400	1,140

	1912.	1911.	1910.
World's visible supply, July 31.....*tons*	3,868	5,981	2,373
Pará receipts, July 1 to July 31.....	1,320	1,150	1,500
Pará receipts of caucho, same date.....	450	350	890
Afloat from Pará to United States, July 31..	311	216	219
Afloat from Pará to Europe, July 31.....	500	530	320

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

January 5, 1912	4/4½	May 3, 1912.....	4/7½
January 12	4/5½	May 10	4/7½
January 19	4/5½	May 17	4/7½
January 26	4/8	May 24	4/7½
February 2	4/7	May 31	4/7½
February 9	4/6½	June 7	4/8½
February 16	4/6¾	June 14	4/10
February 23	4/7½	June 21	4/9½
March 1	4/7½	June 28	4/7½
March 8	4/9	July 5	4/9
March 15	4/10½	July 12	4/10
March 22	5/1½	July 19	4/10
March 29	4/11½	July 26	4/11¼
April 5	4/11	August 2	4/11
April 12	4/11	August 9	5/0½
April 19	4/10¼	August 16	5/0½
April 25	4/9	August 23	5/2

Rubber Stock at Para.

Stock for January 31 showed an increase caused by heavier arrivals, while that of February 29 shows a slight decrease. The stock of March 31 displayed a further reduction, while that of April 30 was about the same as a month earlier. On May 31 the stock had again increased, but had receded by June 30; and had again fallen off on July 31.

February 28, 1911..*tons*	3,787	November 30, 1911.*tons*	3,050
March 31	4,214	December 31	2,675
April 30	5,104	January 31, 1912.....	3,370
May 31	5,350	February 29	3,240
June 30	4,545	March 31	2,730
July 31	3,884	April 30	2,770
August 31	3,450	May 31	2,995
September 30	3,102	June 30	2,685
October 31, ...	3,320	July 31	2,300

Amsterdam.

JOOSTEN & JANSSEN report [August 16]:

Today's offerings included about 20 tons *Heveas* and 17 tons *Ficus*, most of the important lots realizing on an average 3 per cent. above foreign parity. The bulk of the quantity offered was sold. Prices of *Heveas* and *Ficus* averaged 5 per cent. below those of *Castilloa*.

Rotterdam.

HAVELAAR & DE VRIES report [August 16]:

The offerings in sale of 9th inst. included about 12 tons Congo, 7 tons *Heveas* and 1½ tons *Ficus*, nearly all sold with good competition. Congos and *Castilloas* reached 1*d*. above valuations, while *Heveas* and *Ficus* went at 2*d*. to 1*d*. below valuations. On 28th August there will be a sale of about 1½ tons gutta-percha, "Tjipetia" brand.

African Rubbers.

NEW YORK STOCKS (IN TONS).

July 1, 1911.....	90	February 1, 1912.....	150
August 1	90	March 1	90
September 1	112	April 1	80
October 1	67	May 1	62
November 1	45	June 1	94
December 1	60	July 1	62
January 1, 1912.....	58	August 1	85

British Crude Rubber Statistics

OFFICIAL STATEMENT—JANUARY 1 TO JUNE 30.

WEIGHTS.

	1910.	1911.	1912.
Imports .....*pounds*	56,279,888	52,346,896	57,608,096
Exports	29,237,152	29,984,416	41,535,760
Net imports	27,042,736	22,362,480	16,072,336

VALUES.

Imports	£16,280,980	£10,415,368	£10,388,167
Exports	8,448,898	6,731,945	8,357,766
Net imports	£7,832,082	£3,683,423	£2,030,401

GUTTA PERCHA IMPORTS.

WEIGHTS.

	1910.	1911.	1912.
Imports.....*pounds*	4,330,032	3,394,496	2,839,536
Exports	245,504	621,264	349,104
Net imports	4,094,528	2,773,232	2,490,432

VALUES.

Imports	£438,740	£389,220	£270,867
Exports	28,795	80,634	49,158
Net imports	£409,945	£308,586	£221,709

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weight in Pounds.*]

AUGUST 1.—By the steamer *Gregory* from Manáos:

	Fine.	Medium.	Coarse.	Caucho.	TOTAL.
Arnold & Zeiss.....	40,000	15,700	27,700	200=	83,600
L. & A. Astlett.....	.....	.....	.....	17,200=	17,200
W. R. Grace & Co.....	.....	.....	.....	7,100=	7,100
Robinson & Co.....	3,400	3,300	.....	.....=	6,700
New York Commercial Co...	.....	5,000	.....	.....=	5,000
Total	43,400	24,000	27,700	24,500=	119,600

AUGUST 1.—By the steamer *Purus* from Pará:

New York Commercial Co...	42,900	7,800	6,000	25,200=	81,900
Meyer & Brown.....	63,200	.....	1,200	.....=	64,400
Robinson & Co.....	3,900	.....	15,800	.....=	19,700
Arnold & Zeiss.....	3,000	.....	4,900	.....=	7,900
General Rubber Co.....	.....	.....	4,600	.....=	4,600
Total	113,000	7,800	32,500	25,200=	178,500

AUGUST 5.—By the steamer *Stephan* from Manáos and Pará:

General Rubber Co.....	168,300	31,300	10,200	.....=	209,800
Arnold & Zeiss.....	28,500	5,000	67,300	59,400=	160,200
Meyer & Brown.....	75,700	1,100	.....	24,600=	101,400
New York Commercial Co...	5,700	1,800	26,400	42,600=	76,500
Henderson & Korn.....	5,700	300	21,100	.....=	27,100
De Lagotellerie & Co.....	11,500	1,000	11,900	.....=	24,400
Robinson & Co.....	8,900	3,100	9,200	.....=	21,200
Hagemeyer & Brunn.....	8,600	300	5,900	.....=	14,800
Total	312,900	43,900	152,000	126,600=	635,400

AUGUST 19.—By the steamer *Dominic* from Manáos and Pará:

Arnold & Zeiss.....	254,300	44,900	148,200	52,600=	500,000
New York Commercial Co...	200,900	43,700	61,400	19,900=	325,900
Meyer & Brown.....	45,600	13,800	22,000	51,200=	132,600
Henderson & Korn.....	29,300	8,300	6,100	6,500=	50,200
De Lagotellerie & Co.....	21,400	1,500	11,900	.....=	34,800
General Rubber Co.....	10,700	.....	15,900	.....=	26,600
Hagemeyer & Brunn.....	600	.....	2,000	.....=	2,600
Total	562,800	112,200	267,500	131,200=	1,072,700

AUGUST 24.—By the steamer *Clement* from Manáos and Pará:

Arnold & Zeiss.....	195,000	16,800	135,600	33,600=	381,000
Henderson & Korn.....	45,100	6,000	186,300	600=	238,000
New York Commercial Co...	86,300	12,500	25,200	51,400=	175,400
De Lagotellerie & Co.....	35,700	5,700	27,000	600=	69,000
General Rubber Co.....	.....	.....	32,400	.....=	32,400
Robinson & Co.....	8,200	700	19,800	.....=	28,700
Meyer & Brown.....	6,100	400	.....	.....=	6,500
G. Amsinck & Co.....	2,500	.....	600	.....=	3,100
Total	378,900	42,100	426,900	86,200=	934,100

PARA RUBBER VIA EUROPE.

		POUNDS.
JULY 25.—By the *Maracas*=Bolivar:		
Ed. Maurer (Fine)	8,000	
Ed. Maurer (Coarse)	8,000	16,000
JULY 29.—By the *Caronia*=Liverpool:		
Robinson & Co. (Fine)	10,000	
New York Commercial Co. (Fine)	22,500	32,500
JULY 30.—By the *Allianca*=Mollendo:		
F. Rosenstern & Co. (Fine)	3,000	
W. R. Grace & Co. (Caucho)	2,500	5,500
AUGUST 1.—By the *President Grant*=Hamburg:		
Ed. Maurer (Fine)	10,000	
New York Commercial Co. (Fine)	6,000	16,000
AUGUST 3.—By the *Lusitania*=Liverpool:		
New York Commercial Co. (Fine)		45,000
AUGUST 7.—By the *Grenada*=Bolivar:		
Ed. Maurer (Fine)	50,000	
Ed. Maurer (Coarse)	15,000	
Yglesias, Lobo & Co. (Fine)	4,500	
Yglesias, Lobo & Co. (Coarse)	2,000	
American Trading Co. (Fine)	1,500	73,000
AUGUST 7.—By the *Saramaca*=Bolivar:		
General Export Comm. Co. (Fine)	30,000	
General Exp. Comm. Co. (Coarse)	10,000	40,000
AUGUST 10.—By the *Celtic*=Liverpool:		
Robinson & Co. (Fine)		5,000
AUGUST 12.—By the *Campania*=Liverpool:		
Raw Products Co. (Caucho)		13,500
AUGUST 14.—By the *Cincinnati*=Hamburg:		
Meyer & Brown (Fine)	11,500	
Ed. Maurer (Fine)	5,500	17,000
AUGUST 16.—By the *Mauretania*=Liverpool:		
Arnold & Zeiss (Caucho)		45,000
AUGUST 21.—By the *Caronia*=Liverpool:		
Arnold & Zeiss (Fine)		17,000
AUGUST 21.—By the *President Lincoln*=Hamburg:		
Ed. Maurer (Fine)	8,000	
New York Commercial Co. (Fine)	2,500	10,500
AUGUST 24.—By the *Baltic*=Liverpool:		
Arnold & Zeiss (Caucho)	22,500	

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

		POUNDS.
JULY 24.—By the *Joachim*=Colon:		
G. Amsinck & Co.	9,000	
Pablo Calvet & Co.	1,500	
Roldau & Van Sickle	1,000	
J. J. Julia & Co.	1,000	
Suzarte & Whitney	1,000	
I. Brandon & Bros.	1,000	
Wessels, Kulenkampff & Co.	1,000	15,500
JULY 26.—By the *Camaguey*=Tampico:		
Ed. Maurer	*245,000	
New York Commercial Co.	*140,000	
Arnold & Zeiss	*45,000	
H. Marquardt & Co.	*30,000	
For Europe	*65,000	*525,000
JULY 27.—By the *Esperanza*=Mexico:		
Harburger & Stack	4,000	
E. Steiger & Co.	3,500	
G. Amsinck & Co.	1,500	
Mecke & Co.	1,000	
New York Commercial Co.	1,000	
For Europe	7,000	18,000
JULY 27.—By *El Siglo*=Galveston:		
Continental-Mexican Rubber Co.	*56,000	
Charles T. Wilson	*9,000	*65,000
JULY 27.—By the *Tennyson*=Bolivar:		
A. Hirsch & Co.	56,000	
J. H. Rossbach & Bros.	9,000	65,000
JULY 29.—By the *Allianca*=Colon:		
G. Amsinck & Co.	3,500	
J. Sambrada & Co.	1,000	
Pablo Calvet & Co.	1,000	
Dumarest Bros. & Co.	1,000	6,500
JULY 30.—By *El Mundo*=Galveston:		
Continental-Mexican Rubber Co.	*100,000	*100,000
JULY 30.—By the *Altai*=Colombia:		
A. Held	2,000	
Maitland, Coppell & Co.	1,500	
R. del Castillo & Co.	1,500	
Caballero & Blanco	1,000	
I. Brandon & Bros.	1,000	7,000
JULY 30.—By the *Comus*=New Orleans:		
Manhattan Rubber Mfg. Co.	3,500	
Eggers & Heinlein	2,500	
Robinson & Co.	1,500	
Unknown	2,500	10,000
JULY 31.—By the *Prinz Eitel Friedrich*=Colon:		
A. M. Capen & Son	4,500	
J. Sambrada & Co.	3,500	
Andean Trading Co.	3,500	
United Fruit Co.	1,500	
Gillespie Bros. & Co.	1,500	
In transit	3,000	17,500
AUGUST 3.—By the *Morro Castle*=Frontera:		
Harburger & Stack	6,000	
G. Amsinck & Co.	3,500	
New York Commercial Co.	3,500	
Meyer & Brown	2,500	
E. Steiger & Co.	2,000	
W. Hawes & Co.	1,000	
Hermann Kluge	1,000	19,500
AUGUST 5.—By the *Vasari*=Bolivar:		
A. Hirsch & Co.	27,000	
New York Commercial Co.	4,500	
J. H. Rossbach & Bros.	2,500	34,000
AUGUST 5.—By the *Guantanamo*=Tampico:		
Ed. Maurer	*150,000	
New York Commercial Co.	*80,000	
Arnold & Zeiss	*35,000	
J. W. Wilson & Co.	*10,000	
For Europe	*20,000	*295,000
AUGUST 5.—By the *Cedric*=Liverpool:		
A. Hirsch & Co.		15,000
AUGUST 7.—By the *Rochambeau*=Havre:		
In Transit		35,000
AUGUST 7.—By *El Dia*=Galveston:		
Continental-Mexican Rubber Co.	*100,000	
Chas. T. Wilson	*20,000	*120,000
AUGUST 7.—By the *Antilles*=New Orleans:		
Manhattan Rubber Mfg. Co.	13,500	
Unknown	4,000	17,500
AUGUST 7.—By the *Colon*=Colon:		
G. Amsinck & Co.	24,000	
Piza, Nephews & Co.	5,000	
A. Rosenthal & Sons	4,000	
I. Brandon & Bros.	3,500	
Dumarest Bros. & Co.	3,500	
Mecke & Co.	2,500	
Kunhardt & Co.	1,500	
Caballero & Blanco	1,500	
I. Sambrada & Co.	1,500	
Lanman & Kemp	1,500	
Pablo Calvet & Co.	1,500	
H. Fellman & Co.	1,000	51,000
AUGUST 12.—By the *Seguranca*=Mexico:		
Harburger & Stack	6,500	
New York Commercial Co.	4,500	
Meyer & Brown	2,500	
American Trading Co.	3,000	
Kunhardt & Co.	1,500	
H. Marquardt & Co.	1,000	
For London	4,500	23,500
AUGUST 12.—By the *Scottish Prince*=Bolivar:		
A. Hirsch & Co.		18,000
AUGUST 13.—By the *Matanzas*=Tampico:		
Ed. Maurer	*95,000	
Arnold & Zeiss	*35,000	
Continental-Mexican Rubber Co.	*35,000	
For Europe	*55,000	220,000
AUGUST 15.—By the *Oruba*=Colon:		
I. Brandon & Bros.	17,000	
G. Amsinck & Co.	10,000	
H. Fellman & Co.	3,000	
A. M. Canen's Sons	2,500	
DeLima, Cortissoz & Co.	2,000	
Roldau & Van Sickle	1,500	
Gillespie Bros. & Co.	1,000	37,000
AUGUST 16.—By the *Texan*=Mexico:		
Charles T. Wilson		*35,000
AUGUST 16.—By the *Panama*=Colon:		
G. Amsinck & Co.	12,000	
H. Fellman & Co.	5,000	
J. Sambrada & Co.	4,000	
W. Loaiza & Co.	2,000	23,000
AUGUST 19.—By the *Antilles*=Tampico:		
Ed. Maurer	*100,000	
New York Commercial Co.	*70,000	
For Europe	*15,000	185,000
AUGUST 20.—By the *Prinz Joachim*=Colon:		
G. Amsinck & Co.	12,500	
I. Brandon & Bros.	9,500	
Andean Trading Co.	3,500	
New York Commercial Co.	2,500	
Gravenhorst & Co.	2,000	
Suzarte & Whitney	1,000	31,000
AUGUST 20.—By *El Dorado*=Galveston:		
Continental-Mexican Rubber Co.	*35,000	
Chas. T. Wilson	*5,000	*40,000
AUGUST 22.—By the *Allianca*=Colon:		
G. Amsinck & Co.	5,000	
Charles E. Griffin	3,500	
Gillespie Bros. & Co.	1,500	
Mecke & Co.	1,500	
Pablo Calvet & Co.	1,000	
Wessels, Kulenkampff & Co.	1,000	
Maldonado & Co.	1,000	14,500
AUGUST 23.—By the *Monterey*=Frontera:		
H. Marquardt & Co.	5,500	
Herman Kluge	2,500	
E. Steiger & Co.	2,500	
Harburger & Stack	1,500	
Graham, Hinkley & Co.	1,500	
American Trading Co.	1,500	
Geo. A. Alden & Co.	1,000	
Meyer & Brown	1,000	
For London	5,500	22,500

AFRICAN.

		POUNDS.
JULY 25.—By the *Hamburg*=Hamburg:		
Meyer & Brown	18,000	
George A. Alden & Co.	7,000	
General Rubber Co.	6,000	
Rubber Trading Co.	4,500	
Muller Schall & Co.	4,000	
Ed. Maurer	4,500	44,000
JULY 29.—By the *Philadelphia*=London:		
George A. Alden & Co.	27,000	
Charles T. Wilson	7,000	
Rubber Trading Co.	7,000	
Robert Badenhop	4,500	
Muller Schall & Co.	2,500	48,000
JULY 29.—By the *Caronia*=Liverpool:		
George A. Alden & Co.	11,500	
Ed. Maurer	11,000	
Robert Badenhop	4,500	27,000
JULY 31.—By the *Vaderland*=Antwerp:		
Meyer & Brown	7,000	
Henderson & Korn	3,500	10,500
AUGUST 1.—By the *President Grant*=Hamburg:		
Ed. Maurer	15,000	
Rubber Trading Co.	7,000	22,000
AUGUST 3.—By the *Lusitania*=Liverpool:		
Arnold & Zeiss	9,000	
George A. Alden & Co.	9,000	
Raw Products Co.	2,000	20,000
AUGUST 5.—By the *Cedric*=Liverpool:		
Meyer & Brown	29,000	
Ed. Maurer	15,000	
J. T. Johnstone	11,000	55,000
AUGUST 6.—By the *Lapland*=Antwerp:		
Wallace L. Gough Co.	11,000	
Arnold & Zeiss	7,000	
Meyer & Brown	5,500	23,500
AUGUST 6.—By the *St. Louis*=London:		
Ed. Maurer	45,000	
Meyer & Brown	40,000	85,000
AUGUST 7.—By the *Rochambeau*=Havre:		
George A. Alden & Co.		15,000
AUGUST 7.—By the *Amerika*=Hamburg:		
Meyer & Brown	100,000	
Ed. Maurer	60,000	
Arnold & Zeiss	35,000	
Wallace L. Gough Co.	13,500	
Rubber Trading Co.	7,000	
J. T. Johnstone	5,000	220,500
AUGUST 8.—By the *Oceanic*=London:		
Robert Badenhop	7,000	
Charles T. Wilson	7,000	14,000
AUGUST 10.—By the *Celtic*=Liverpool:		
General Rubber Co.	17,000	
Henderson & Korn	9,000	
Arnold & Zeiss	7,000	
J. T. Johnstone	2,000	35,000
AUGUST 12.—By the *Pennsylvania*=Hamburg:		
Meyer & Brown	20,000	
Robert Badenhop	18,000	
Henderson & Korn	11,500	
General Rubber Co.	13,500	
Ed. Maurer	5,500	68,500
AUGUST 12.—By the *New York*=London:		
George A. Alden & Co.	67,000	
Meyer & Brown	15,000	
Robert Badenhop	11,500	93,500
AUGUST 14.—By the *Cincinnati*=Hamburg:		
Ed. Maurer	22,500	
Meyer & Brown	17,000	
George A. Alden & Co.	13,500	
Rubber Trading Co.	4,500	57,500
AUGUST 14.—By the *Finland*=Antwerp:		
George A. Alden & Co.	85,000	
Meyer & Brown	22,500	
Arnold & Zeiss	25,000	132,500

AUGUST 16.—By the *Adriatic*=Liverpool:

General Rubber Co.	18,500	
Wallace L. Gough Co.	9,000	27,500

AUGUST 19.—By the *Indiana*=Lisbon:

General Rubber Co.	56,000	
Ed. Maurer	30,000	86,000

AUGUST 20.—By he *Zeeland*=Antwerp:

Arnold & Zeiss	8,000	
Henderson & Korn	7,000	
Wallace L. Gough Co.	8,000	23,000

AUGUST 21.—By the *Caronia*=Liverpool:

Arnold & Zeiss	10,000	
J. T. Johnstone	7,500	17,500

AUGUST 21.—By the *President Lincoln*=Hamburg:

Ed. Maurer	13,500	
Wallace L. Gough Co.	13,500	
Meyer & Brown	10,000	
Henderson & Korn	5,000	
George A. Alden & Co.	5,000	
Rubber Trading Co.	5,000	
Robert Badenhop	4,000	
General Rubber Co.	4,500	60,500

EAST INDIAN.

[*Denotes plantation rubber.]

	POUNDS.	
JULY 24.—By the *Olympic*=London:		
Arnold & Zeiss	*45,000	
New York Commercial Co.	*25,000	
J. T. Johnstone	*15,000	
Charles T. Wilson	*11,500	
Meyer & Brown	*15,000	
Ed. Maurer	*10,000	
In Transit	*15,500	*137,000
JULY 29.—By the *Philadelphia*=London:		
Arnold & Zeiss	*34,000	
New York Commercial Co.	*33,500	
Ed. Maurer	*22,500	
W. H. Stiles & Co.	*11,000	*101,000
JULY 29.—By the *Caronia*=Liverpool:		
Robinson & Co.	*9,000	
Raw Products Co.	*5,000	
Robinson & Co.	*27,000	*41,000
JULY 30.—By the *Vaderland*=Antwerp:		
Robert Badenhop	*11,000	
Meyer & Brown	*6,000	*17,000
JULY 30.—By the *Schuylkill*=Singapore:		
General Rubber Co.	*45,000	
Ed. Maurer	*20,000	
Wallace L. Gough Co.	*15,000	
New York Commercial Co.	*11,000	
L. Littlejohn & Co.	*15,000	
Ed. Maurer	65,000	
L. Littlejohn & Co.	11,000	182,000
AUGUST 1.—By the *Majestic*=London		
New York Commercial Co.	*65,000	
Arnold & Zeiss	*9,000	
Charles T. Wilson	*9,000	
Robert Badenhop	*7,000	*90,000
AUGUST 3.—By the *Lusitania*=Liverpool:		
Robinson & Co.	*11,000	
Raw Products Co.	*5,500	*16,500
AUGUST 6.—By the *Lapland*=Antwerp:		
Meyer & Brown	*90,000	
Wallace L. Gough Co.	*3,500	*93,500
AUGUST 6.—By the *St. Louis*=London:		
Ed. Maurer	*22,500	
New York Commercial Co.	*22,500	
Arnold & Zeiss	*15,000	
Robinson & Co.	*11,500	
W. H. Stiles & Co.	*45,000	*116,500
AUGUST 7.—By the *Minneapolis*=London:		
Robinson & Co.	*11,500	
Raw Products Co.	*11,000	
Robinson & Co.	*22,500	*45,000
AUGUST 8.—By the *Oceanic*=London:		
New York Commercial Co.	*40,000	
Meyer & Brown	*23,000	
J. T. Johnstone	*22,000	
Ed. Maurer	*25,000	
Robert Badenhop	*10,000	
Charles T. Wilson	*7,000	
Henderson & Korn	*22,500	
Arnold & Zeiss	*11,500	
General Rubber Co.	35,000	
In Transit	*35,000	231,000
AUGUST 9.—By the *Rotterdam*=Rotterdam:		
Ed. Maurer	*13,500	
Raw Products Co.	*7,000	*20,500
AUGUST 10.—By the *Kasama*=Colombo:		
Meyer & Brown	*45,000	
New York Commercial Co.	*8,000	*53,000
AUGUST 12.—By the *New York*=London:		
New York Commercial Co.	*30,000	
J. T. Johnstone	*13,500	
Ed. Maurer	*13,500	
Meyer & Brown	*11,500	
W. H. Stiles & Co.	*13,500	
Robert Badenhop	*9,000	
George A. Alden & Co.	30,000	
In Transit	*35,000	156,000
AUGUST 12.—By the *Lothian*=Singapore:		
Wallace L. Gough Co.	*19,000	
Ed. Maurer	*13,500	
L. Littlejohn & Co.	*11,500	
New York Commercitl Co.	*3,500	*47,500
AUGUST 14.—By the *Cincinnati*=Hamburg:		
Rubber Trading Co.		*15,000
AUGUST 14.—By the *Finland*=Antwerp:		
Meyer & Brown	*22,500	
Arnold & Zeiss	*11,500	*34,000
AUGUST 15.—By the *Olympic*=London:		
New York Commercial Co.	*50,000	
Robinson & Co.	*25,000	
Ed. Maurer	*15,000	
W. H. Stiles & Co.	*9,000	
Charles T. Wilson	*5,000	
Arnold & Zeiss	*15,000	
In Transit	*90,000	*209,000
AUGUST 17.—By the *Walton Hall*=Singapore:		
Ed. Maurer	*54,000	
Wallace L. Gough Co.	*25,000	
L. Littlejohn & Co.	*11,500	
Otto Isenstein & Co.	30,000	
Arnold & Zeiss	22,500	
Haebler & Co.	16,000	
J. Warren Bird	15,000	
Manhattan Rubber Mfg. Co.	7,000	181,000
AUGUST 19.—By the *St. Paul*=London:		
New York Commercial Co.	*40,000	
Arnold & Zeiss	*35,000	
Ed. Maurer	*30,000	
W. H. Stiles & Co.	*15,000	
Meyer & Brown	*11,000	*131,000
AUGUST 20.—By the *Egremont*=Singapore:		
Ed. Maurer	*35,000	
L. Littlejohn & Co.	*10,000	
Ed. Maurer	30,000	75,000
AUGUST 20.—By the *Zeeland*=Antwerp:		
Meyer & Brown		*15,000
AUGUST 22.—By the *Majestic*=London:		
Arnold & Zeiss	*35,000	
New York Commercial Co.	*30,000	
Robinson & Co.	*7,000	
Ed. Maurer & Co.	*5,500	
Robert Badenhop	*5,500	
Raw Products Co.	*3,500	
Arnold & Zeiss	22,500	
In Transit	*22,500	131,500

GUTTA-JELUTONG.

	POUNDS.	
JULY 29.—By the *Schuylkill*=Singapore:		
L. Littlejohn & Co.	425,000	
Haebler & Co.	295,000	
Wallace L. Gough Co.	280,000	
George A. Alden & Co.	100,000	1,100,000
AUGUST 17.—By the *Walton Hall*=Singapore:		
L. Littlejohn & Co.	250,000	
Wallace L. Gough Co.	55,000	
Haebler & Co.	50,000	355,000
AUGUST 20.—By the *Egremont*=Singapore:		
Haebler & Co.	285,000	
L. Littlejohn & Co.	315,000	
Wallace L. Gough Co.	155,000	
George A. Alden & Co.	40,000	
W. R. Russell & Co.	100,000	895,000

GUTTA-PERCHA.

	POUNDS.	
AUGUST 12.—By the *Lothian*=Singapore:		
Ed. Maurer		40,000
AUGUST 17.—By the *Walton Hall*=Singapore:		
Wallace L. Gough Co.	34,000	
Haebler & Co.	3,500	37,500
AUGUST 20.—By the *Egremont*=Singapore:		
Wallace L. Gough Co.		30,000
AUGUST 21.—By the *President Lincoln*=Hamburg:		
Robert Soltau & Co.		8,500

BALATA.

	POUNDS.	
JULY 31.—By the *Tagus*=Colon:		
G. Amsinck & Co.		5,500
AUGUST 7.—By the *Saramaca*=Demerara:		
Ed. Maurer	5,500	
Middleton Co.	3,500	
George A. Alden & Co.	2,500	11,500
AUGUST 10.—By the *Advance*=Colon:		
H. Marquardt & Co.	5,000	
M. A. DeLeon Co.	4,000	9,000
AUGUST 20.—By the *Coopename*=Demerara:		
G. Amsinck & Co.	11,000	
Ed. Maurer	7,000	
Middleton & Co.	5,500	
George A. Alden & Co.	2,500	26,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—JULY, 1912.

Imports:	Pounds.	Value.
India-rubber	6,316,847	$5,272,552
Balata	9,541	7,708
Guayule	726,855	270,232
Gutta-percha	10,257	8,173
Gutta-jelutong (Pontianak)	764,235	33,494
Total	7,827,735	$5,592,159
Exports:		
India-rubber	61,096	$49,724
Balata	.....	.....
Guayule	2,176	1,688
Gutta-percha	.....	.....
Reclaimed rubber	150,103	19,492
Gutta-jelutong (Pontianak)	.....	.....
Rubber scrap, imported	3,344,585	$176,285
Rubber scrap, exported	344,267	47,269

BOSTON ARRIVALS.

	POUNDS.
JULY 12.—By the *Cymric*=Liverpool:	
George A. Alden & Co. (Gutta Percha)	2,100
JULY 22.—By the *Schulykill*=Singapore:	
State Rubber Co. (East Indian)	47,000
JULY 22.—By the *Schulykill*=Singapore:	
State Rubber Co. (Jelutong)	175,000
JULY 22.—By the *Schulykill*=Singapore:	
George A. Alden & Co. (Jelutong)	157,000
JULY 22.—By the *Schulykill*=Singapore:	
L. Littlejohn & Co. (Jelutong)	1,380,000

EXPORTS OF INDIA-RUBBER FROM PARA FOR JULY, 1912 (IN KILOGRAMS).

	NEW YORK.					EUROPE.					
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Zarges, Berringer & Co.	71,403	24,985	143,149	57,147	296,684	95,245	21,585	52,219	92,077	261,126	557,810
Ad. H. Alden, Ltd.	54,512	10,776	31,623	34,720	131,631	58,575	3,475	31,680	.....	93,730	225,361
General Rubber Co. of Brazil	21,739	1,378	33,524	12,320	68,961	40,443	2,007	1,807	55,726	99,983	168,944
Suarez Hermanos & Co., Ltd.	.....	.....	.....	.....	.....	45,503	470	4,223	24,380	74,576	74,576
R. O. Ahlers & Co.	27,372	7,400	31,082	19,349	85,203	19,260	.....	6,404	6,226	31,890	117,093
De Lagotellerie & Co.	17,850	2,380	20,790	.....	41,020	14,620	.....	.....	.....	14,620	55,640
Pires, Teixeira & Co.	4,080	170	2,970	.....	7,220	3,400	170	.....	.....	3,570	10,790
Syndicate J. Marques	140,320	14,880	5,100	.....	160,300	120,000	14,880	5,100	.....	139,980	300,280
J. Marques	2,720	170	10,560	.....	13,450	2,890	170	2,970	.....	6,030	19,480
Sundry exporters	4,121	.....	3,300	560	7,981	170	.....	330	1,120	1,620	9,601
Itacoatiara, direct	.....	.....	.....	.....	.....	5,160	450	3,270	.....	8,880	8,880
	344,117	62,139	282,098	124,096	812,450	405,266	43,207	108,003	179,529	736,005	1,548,455
Manáos, direct	234,663	55,248	42,010	24,669	356,590	171,066	15,089	74,052	209,012	469,219	825,809
Iquitos, direct	231	.....	.....	11,828	12,059	12,954	432	3,051	90,858	107,295	119,354
Total, July, 1912	579,011	117,387	324,108	160,593	1,181,099	589,286	58,728	185,106	479,399	1,312,519	2,493,618

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Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are practically unchanged.

	September 1.
Old rubber boots and shoes—domestic	9⅛@ 9¼
Old rubber boots and shoes—foreign	9⅛@ 9¼
Pneumatic bicycle tires	4½@ 4¾
Automobile tires	9⅛@ 9¼
Solid rubber wagon and carriage tires	9¼@ 9½
White trimmed rubber	11 @11½
Heavy black rubber	4¾@ 5
Air brake hose	5½@ 5¾
Garden hose	1½@ 1⅝
Fire and large hose	2 @ 2⅛
Matting	⅝@ ¾

Antwerp

RUBBER STATISTICS FOR JULY.

DETAILS.	1912.	1911.	1910	1909.	1908.
Stocks, June 30..*Kilos*	343,191	773,977	460,517	476,420	684,866
Arrivals in July—					
Congo sorts	296,528	198,520	144,697	461,506	172,828
Other sorts	21,662	21,790	42,685	56,358	48,816
Plantation sorts	57,405	42,741	65,517	12,056	5,558
Aggregating	718,786	1,037,028	710,416	1,006,340	912,068
Sales in July	284,475	571,294	190,451	481,828	216,517
Stocks, July 31	434,311	465,734	519,965	524,512	695,551
Arrivals since Jan. 1—					
Congo sorts	1,713,944	1,841,113	1,800,323	2,177,715	2,430,364
Other sorts	90,828	268,743	210,207	610,922	333,921
Plantation sorts	670,039	374,217	324,577	144,787	68,742
Aggregating	2,474,811	2,484,073	2,335,107	2,933,424	2,833,027
Sales since Jan. 1	2,715,038	2,606,551	2,356,652	3,004,647	3,144,370

RUBBER ARRIVALS FROM THE CONGO.

JULY 23.—By the steamer *Bruxellesville:*

Bunge & Co	(Société Générale Africaine) *Kilos.*	112,000	
do	(Chemin de fer Grands Lacs)	8,000	
do	(Alberta)	2,800	
Société Coloniale Anversoise	(Cie. du Kasai)	63,800	
do	(Comminiére)	15,600	
L. & W. Van de Velde	(Comfina)	14,500	
do	(Velde)	6,000	
Charles Dethier	(American Congo Co.)	6,700	
Congo Trading Co.		8,600	
Societe Generale de Commerce	(Alimaienne)	1,200	
Cassart & Henrion		700	239,900

AUGUST 13.—By the steamer *Elizabethville:*

Bunge & Co	(Société Générale Africaine) *Kilos*	120,000	
do	(Chemins de fer Grande Lacs)	32,000	
do	(Alberta)	2,400	
do	(Belgika)	430	
do	(Comptoir Commercial Congolais)	30,000	
do		1,750	
Société Coloniale Anversoise	(Haut Congo)	3,600	
do	(Société Française du Haut Congo)	5,400	
L. & W. Van de Velde	(Cie. du Kasai)	60,500	
do	(Comfina)	6,000	
do	(Velde)	4,000	
Charles Dethier	(American Congo Co.)	5,500	
do	(Comminière)	15,100	
Willaert Frères		5,000	
Congo Trading Co		2,000	293,680

Plantation Rubber From the Far East.

EXPORTS OF CEYLON-GROWN RUBBER.

(From January 1 to July 1, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.)

	1911.	1912.
To Great Britain *pounds*	1,223,384	2,824,486
To United States	845,941	1,630,163
To Belgium	181,519	546,922
To Australia	18,824	76,494
To Germany	8,590	65,280
To Canada	9,971	16,065
To Austria	.....	12,563
To Japan	21,684	8,315
To Italy	3,597	5,885
To Holland	100	2,282
To France	117	.....
To India	85	100
To Norway and Sweden	.....	39
Total	2,313,812	5,188,594

[Same period 1910—1,087,620 pounds; same 1909—497,677.]

TOTAL EXPORTS FROM MALAYA.

(From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

To—	Singapore. June 30.	Penang. June 23.	Port Swettenham. June 30.	Total. 1912.
Great Britain...*pounds*	4,424,045	3,782,341	7,650,658	15,857,044
Continent	118,190	27,867	1,046,019	1,192,076
Japan	211,607	.....	.....	211,607
Australia	28,476	.....	.....	28,476
Ceylon	.....	123,751	438,819	562,570
United States	1,129,025	.....	.....	1,129,025
Total	5,911,343	3,933,959	9,135,496	18,980,798
Same period, 1911	2,766,372	2,055,652	5,994,795	10,816,819
Same period, 1910	2,533,732	1,006,176	4,069,587	7,609,495
Same period, 1909	1,240,137	1,436,128	.....	2,676,265